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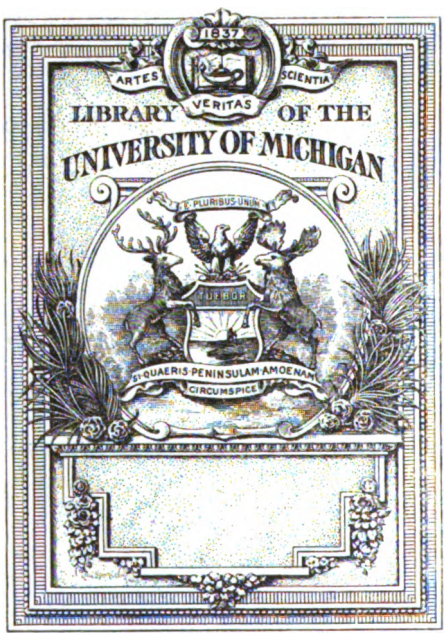

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THE

TRANSACTIONS

OF THE

AMERICAN

MEDICAL ASSOCIATION.

INSTITUTED 1847.

VOL. II.

PHILADELPHIA:
PRINTED FOR THE ASSOCIATION,
BY T. K. AND P. G. COLLINS.
1849.

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NOTICE.

THIS volume having been delayed beyond the period when its publication might have reasonably been looked for, the members of the Association may expect from the Committee on Publication an explanation of this delay. It is proper, therefore, for the Committee to state that every effort in their power has been made for the early publication of the volume. Immediately after the adjournment of the Association in Boston, a contract was entered into for printing the volume, and the minutes of the meeting were placed in the printer's hands. The progress of printing was, however, soon arrested, in consequence of nearly all of the committees having retained their reports for revision or completion, and it was not until after considerable delay that these reports could be obtained, although repeated applications were made for them. Another cause of great delay was the demand made by the authors of several of the reports that the proofs should be sent to them for correction, thus rendering it necessary to forward proofs to nearly the extremities of the Union; and, in some instances, even duplicates—the originals having failed to reach their destination.

It may not be deemed out of place, in the hope of obviating a like delay in the publication of future volumes of the Transactions, for the Committee on Publication to respectfully suggest, that the several committees should bring their reports to the meetings complete, and legibly transcribed so that their authors may feel satisfied that the printers will decipher them correctly, and also that the reports should be handed to the secretaries immediately after being read.

PHILADELPHIA, *Dec.* 10*th*, 1849.

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ERRATUM.

In Appendix to the Report on Practical Medicine, Dr. J. Fithian is erroneously stated to be of Bridgetown, in place of *Woodbury*.

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MINUTES

OF THE

SECOND ANNUAL MEETING

OF THE

AMERICAN MEDICAL ASSOCIATION,

HELD IN THE CITY OF BOSTON, MAY, 1849.

Boston, May 1st, 1849.

The Association met in the Hall of the Lowell Institute at 11 o'clock A. M.

The President, Dr. STEVENS, in the chair.

Dr. J. C. WARREN, on behalf of the Committee of Reception of the Massachusetts Medical Society, presented to the Association the salutation and welcome of his constituents. The proceedings were then opened by an address from the President.

The Committee on Arrangements reported the names of the delegates in attendance.

[The following list comprises the names of all the delegates and members reported at various stages of the proceedings. The names of those who were not present are marked thus †.]

U. S. N. Bureau of Medicine and Surgery,	Dr. †BENAJAH TICKNOR, " M. G. DELANEY.
U. S. N. Member by invitation,	Dr. F. M. GUNNELL.

MAINE.

Penobscot Medical and Surgical Association.	Dr. DANIEL MCRUER.
Medical School of Maine,	Dr. ISAAC LINCOLN, " EDMUND R. PEASLEE.

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Strafford District Med. Society,	Dr. Noah Martin, " †Charles F. Elliott, " John S. Fernald, " Ezra Bartlett.
Centre District Med. Society,	Dr. †George H. Hubbard, " M. T. Willard, " E. K. Webster, " M. R. Woodbury, " S. B. Kelley.
Grafton District Med. Society,	Dr. Cyrus B. Hamilton.
Merrimack County Pathological Society,	Dr. William Prescott, " Timothy Haynes.
Southern District Med. Society,	Dr. S. Smith Stickney, " James Danforth, " Daniel H. Batchelder.
White Mountains Med. Society,	Dr. †William Burns, " †A. Moore, " †J. C. Colly, " †Jacob E. Stickney.

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Manchester Pathological Association,	Dr. William D. Buck, " Thomas R. Crosby.
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VERMONT.

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" †Heman Swift,
" †John Campbell,
" Reuben Spaulding,
" †Lemuel Dickerman, Jr.,
" †W. Bradford,
" Shubael Converse,
" †Thomas E. Power,
" Dyer Story,
" †John Fox,
" A. G. Dana,
" Wm. H. Miller,
" †Dan. C. Stone,
" Zacheus Bass,
" † Alden,
" †D. H. Onion,
" †Leonard Marsh,
" A. S. Pitkin,
" †A. C. Welch,
" †Daniel Goodyear,
" †G. W. Ward,
" †Reuben Nims,
" †G. W. Horton,

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Caledonia Co. Med. Society,	Dr. F. B. Brewer.

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Rutland Co. Med. Society,	Dr. †Silas Brown, " A. G. Dana, " William C. Benton.
Windham Co. Medical Association,	Dr. Cyrus Washburn, " Francis J. Higginson.
Vermont Asylum for the Insane,	Dr. William H. Rockwell.
Castleton Medical College,	Dr. Joseph Perkins, " Corydon L. Ford.
Vermont Medical College,	Dr. B. R. Palmer, " E. M. Moore.

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" Jacob Bigelow,
" Geo. Hayward,
" Geo. Parkman,
" Edw. Reynolds,
" S. D. Townsend,
" John Homans,
" Charles Chase,
" Ephraim Buck,
" M. S. Perry,
" D. H. Storer,
" A. A. Gould,
" Sam. Morill,
" John Flint,
" J. Mason Warren,
" †Ezra Palmer, Jr.,
" Henry Dyer,
" Geo. Bartlett,
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" Charles Mifflin,
" William E. Coale,
" E. W. Blake,
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" A. L. Peirson,
" William Mack,
" †George Brown,
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" John C. Bartlett,
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" Nathan Allen,
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" David Bemis,
" †Silas P. Wright,
" Alfred Lambert,
" †John Greene,
" J. G. Metcalf,
" †C. W. Wilden,
" Joseph Stone,
" †Samuel Hartwell,
" J. W. Bemis,
" Horatio Adams,
" Hiram Hosmer,
" Abraham R. Thompson,
" Morrill Wyman,
" Jeffries Wyman,
" W. F. Stevens,
" †T. Wellington,
" Luther V. Bell,
" Simon Whitney,
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" A. D. Dearborne,
" †E. G. Ufford,
" †S. B. Woodward,
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" H. H. Childs,
" †Royal Fowler,
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" Alexander Poole,
" Aaron Cornish,
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" Geo. Cogswell,
" †Dean Robinson,
" Jeremiah Spofford,
" John Pierce.

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" Coridon Guiteau,
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" Amos B. Bancroft,
" Miles Spalding,
" Daniel Mowe,
" †C. E. Parker.
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Troy Medical Association,	Dr. AVERY J. SKILTON.
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District Med. Soc. of Cumberland County,	Dr. ENOCH FITHIAN.
Essex District Medical Society,	Dr. WHITFIELD NICHOLS, " S. H. PENNINGTON.
Med. Soc. of Gloucester Co.,	Dr. CHARLES GARRISON.
Med. Soc. of Hunterdon County,	Dr. T. EDGAR HUNT, " †SAMUEL LILLY.

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Passaic District Medical Society,	Dr. †E. J. Marsh, " A. W. Rogers.
Permanent Member,	Dr. Joseph Fithian.

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Bucks Co. Medical Society,	Dr. Charles H. Mathews, " †Edward Ely, " †Ralph Lee, " †Charles W. Smith.
Chester Co. Med. Soc.,	Dr. †W. W. Townsend, " Isaac Thomas, " E. F. Rivinus, " Andrew Murphy.
Lancaster City and Co. Med. Soc.,	Dr. Jeremiah B. Stubbs, " †Benjamin S. Rohrer, " James P. Andrews, " †Ely Parry, " William S. Thompson, " Henry E. Muhlenberg, " †Charles L. Baker,
Lancaster Co. Hospital,	Dr. Jno. L. Atlee, " †H. A. Smith.
Montgomery Co. Med. Soc.,	Dr. Charles Fronefield, " †Hiram Corson, " Winthrop Sargent, Jr.
Philadelphia Co. Med. Soc.,	Dr. T. H. Yardley, " W. H. Klapp, " W. Mayburry, " †M. M. Reeve, " H. Gibbons, " T. F. Betton, " J. H. B. McClellan.

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Philadelphia (City) Med. Soc.,	Dr. René La Roche, " †B. H. Coates, " L. Rodman, " E. Hallowell, " M. Clymer, " J. D. Griscom, " †A. E. Stocker, " W. Keith.
Northern Medical Association of Philadelphia,	Dr. N. L. Hatfield, " †W. S. Haines, " R. H. Townsend, " †J. D. Stewart, " †J. H. Handy.
Philadelphia College of Physicians,	Dr. George B. Wood, " Francis West, " Alfred Stillé, " George W. Norris, " Isaac Hays, " D. Francis Condie, " Henry Bond, " Samuel Jackson (of Northumberland), " George Fox, " Gouverneur Emerson.
University of Pennsylvania,	Dr. Samuel Jackson, " William E. Horner.
Medical Department of Pennsylvania College,	Dr. †William Darrach, " William R. Grant.
Jefferson Medical College,	Dr. John K. Mitchell, " Thomas D. Mütter.
Philadelphia College of Medicine,	Dr. Henry Gibbons, " †Christopher C. Cox.
Philadelphia Association for Medical Instruction,	Dr. Francis G. Smith.
Philadelphia Medical Institute,	Dr. John Neill.
Pennsylvania Hospital,	Dr. †Charles D. Meigs.
Wills' Hospital,	Dr. Isaac Parrish.
Philadelphia Dispensary,	Dr. †Joseph Warrington.
Northern Dispensary,	Dr. †George W. Patterson.
Moyamensing Dispensary,	Dr. James Bryan.

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DELAWARE.

State Medical Society,	Dr. Arthur F. Grimshaw, " †Robert McCabe, " † Mitchel, " †Levin H. Adams, " †Samuel M. Fisher, " †William Ashcroft, " † Wolf.
New Castle Co. Med. Soc.,	Dr. Thos. Mackie Smith, " †J. W. Thomson.
New Castle Co. Almshouse and Hospital,	Dr. James F. Wilson.
Med. Association of Wilmington,	Dr. Henry F. Askew.

MARYLAND.

Med. and Chirurg. Faculty of Md. Baltimore City,	Dr. R. S. Steuart, " †A. C. Robinson, " †W. H. Baxley, " †J. J. Cohen, " †John H. Briscoe, " †M. S. Baer, " †Geo. S. Gibson, " †Ashton Alexander, " †W. W. Handy, " †Jno. L. Yeates, " W. H. Davis, " †J. E. Snodgrass, " †J. D. Readel, " †John Whitridge, " †E. W. Theobald, " †S. Collins, " †W. M. Kemp, " †H. Starr, " James Bordley, " F. E. B. Hintze, " †L. S. Joynes, " †William Riley, " †J. P. Mackenzie, " †John Buckler,

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Med. & Chirurg. Faculty of Md.,	*Baltimore City,*	Dr. E. C. BALDWIN, " †S. B. MARTIN, " †WM. S. MCPHERSON, " †A. G. JAMESON.
do.	*Baltimore Co.,*	Dr. †DAVID S. GITTINGS, " †JOSIAH MARSH.
do.	*Carroll Co.,*	Dr. †WILLIAM ZOLLIKOFFER, " †NATHAN BROWN.
do.	*Frederick Co.,*	Dr. †SAMUEL TYLER, " †JACOB BAER.
do.	*Washington Co.,*	Dr. †CHARLES MCGILL, " †SAMUEL WEISEL.
do.	*Alleghany Co.,*	Dr. SAMUEL P. SMITH, " †WILLIAM MOSHER.
do.	*Montgomery Co.,*	Dr. †WASHINGTON DUVALL, " †WASHINGTON WATERS.
do.	*Anne Arundel Co.,*	Dr. †JOEL HOPKINS, " †JOHN H. OWINGS.
do.	*Prince George's Co.,*	Dr. †EDWARD CALVERT, " † HODGES.
do.	*St. Mary's Co.,*	Dr. †W. J. EDELEN, " †JOHN DELANY.
do.	*Charles' Co.,*	Dr. †C. L. BRISCOE, " †ROBERT FERGUSON.
do.	*Calvert Co.,*	Dr. †R. L. MAKALL, " †T. BLAKE.
do.	*Harford Co.,*	Dr. †JACOB PRESTON, " †WILLIAM M. DALLAM.
do.	*Kent Co.,*	Dr. PEREGRINE WROTH, " †JACOB FISHER.
do.	*Cecil Co.,*	Dr. †J. K. B. EMORY, " †THOS. A. ROBERTS.
do.	*Queen Anne's Co.,*	Dr. †WILLIAM HEMSLEY, " †SAMUEL HARPER.
do.	*Talbot Co.,*	Dr. †C. C. COX, " †S. T. KEMP.
do.	*Caroline Co.,*	Dr. †H. F. ROUSSEL, " †JOHN H. HOLT.
do.	*Dorcester Co.,*	Dr. †A. H. BAILEY, " †F. L. PHELPS.

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Med. & Chirurg. Faculty of Md., Worcester Co.,	Dr. †J. R. S. PURNELL.
do. Somerset Co.,	Dr. †S. K. HANDY, " †WILLIAM WILLIAMS.
Frederick County Med. Soc.,	Dr. †ALBERT RITCHIE, " †JACOB BAER, " †THOMAS SIMS, " J. G. GIBSON.
University of Maryland,	Dr. NATHAN R. SMITH, " JOSEPH ROBY.
Washington University,	Dr. THOMAS E. BOND, JR., " †REGINALD N. WRIGHT.
Washington University Hospital,	Dr. GEORGE C. M. ROBERTS.
Baltimore College of Dental Surgery,	Dr. THOMAS E. BOND, JR., " ELEAZAR PARMLY.
Baltimore Medical Institute,	Dr. †PEMBROKE M. WOMBLE.
Baltimore Infirmary,	Dr. †RICHARD H. THOMAS, " †GEORGE W. MILTENBERGER.

DISTRICT OF COLUMBIA.

National Medical College,	Dr. †T. MILLER, " †J. F. MAY.
Medical Association of the D. of C.,	Dr. †JAMES C. HALL, " †JOSHUA RILEY, " †HARVEY LINDSLY, " †JOSEPH BORROWS, " †JAMES E. MORGAN.
Medical Department of the National Institute,	Dr. †JAMES WYNNE, " †JOHN M. THOMAS.

VIRGINIA.

Medical Convention of Va.,	Dr †B. R. WELLFORD, " †W. A. PATTERSON, " H. H. MCGUIRE, " †WM. SELDEN, " †J. F. PEEBLES, " †NATHANIEL T. GREEN, " †GEO. P. HOLMAN, " †JAMES A. LEITCH, " †JOSEPH M. SHEPHARD, " G. LANE CORBIN,

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	Dr. †Wm. Brown, " †Frederick Horner, " †A. S. Baldwin, " †F. T. Stribling, " †John Griffin, " †Daniel Trigg, " †Spicer Patrick, " †Jno. C. Campbell.
Loudon Auxiliary Med. Ass.,	Dr. William B. Cochran.
Ohio Co. Med. Soc.,	Dr. †John Frissell, " †James Tanner.
Norfolk Medical Society,	Dr. A. T. M. Cooke, " R. W. Silvester.
Randolph Macon Coll., Med. Department,	Dr. †John P. Mettauer.
Winchester Medical College,	Dr. John Faunt Le Roy.

NORTH CAROLINA.

State Medical Society,	Dr. Newsom J. Pittman.

SOUTH CAROLINA.

S. C. Medical Association,	Dr. J. Moultrie, " P. C. Gaillard, " R. Lebby, " †R. W. Gibbes, " †H. Ravenel, " †H. W. Fuller, " †J. R. Sparkman, " †J. P. Barratt, " †T. A. Elliott, " †G. Muller, " †J. Douglass, " †A. B. Crook, " †W. C. Cauthen, " †W. K. Sims.
Medical Society of S. C.,	Dr. T. G. Prioleau, " †T. Y. Simons, " †F. Y. Porcher, " †T. L. Ogier, " †St. J. Ravenel, " †H. W. De Saussure.

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Medical Faculty of S. C.,	Dr. THOMAS G. PRIOLEAU, " HENRY R. FROST.

GEORGIA.

Med. Society of the State of Georgia,	Dr. †THOMAS HOXEY, " †F. F. GREEN, " H. I. OGILBY, " ROBERT CAMPBELL, " †J. E. DUPREE, " †E. L. STROHECKER, " W. B. STEPHENS.
Georgia Med. Society,	Dr. R. D. ARNOLD, " †P. M. KOLLOCK.
Medical College of Ga.,	Dr. L. D. FORD, " L. A. DUGAS.

ALABAMA.

Medical Association of the State of Alabama,	Dr. †WILLIAM M. BOLING, " BOLING A. BLAKEY, " B. R. JONES, " †F. A. BATES, " †J. A. ENGLISH, " †P. H. LEWIS, " ANTHONY T. MORRIS. " †J. C. HARRIS, " †F. C. GORDON, " †E. C. SAVINDER, " †W. A. WELCH, " †R. L. FEARN.
Med. Soc. of Montgomery,	Dr. †SAMUEL D. HOLT, " BENJ. R. JONES, " †WM. M. BOLING, " BOLING A. BLAKEY.

LOUISIANA.

Chymico-Med. Society of New Orleans,	Dr. JAMES JONES, " JOSEPH C. SIMONDS.
Med. Dep't of the Uni. of L.,	Dr. JAMES JONES.

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TENNESSEE.

Med. Society, of East Tenn.,	Dr. Frank A. Ramsey, " B. B. Lenoir.

OHIO.

Belmont Medical Society,	Dr. †Ephraim Gaston,
Medico-Chirurgical Society of Cincinnati,	Dr. John P. Harrison, " †Jesse P. Judkins, " Reuben D. Mussey, " †John L. Vattier, " †John H. Tate, " †David Judkins.
Medical College of Ohio,	Dr. R. D. Mussey, " John P. Harrison.
Ohio Lunatic Asylum,	Dr. William W. Awl.
Starling Medical College,	Dr. H. H. Child.

INDIANA.

Indiana Med. College,	Dr. A. B. Shipman, " Daniel Meeker.
North Western Academy of Nat. and Med. Sci.,	Dr. A. B. Shipman.

ILLINOIS.

Peoria District Med. Ass.,	Dr. †Joseph C. Frye, " †H. H. Sexton, " †John D. Arnold, " †N. S. Tucker.
Rock Island Medical School,	Dr. John F. Sanford, " † Armor.
Rush Medical College,	Dr. Jno. Evans.

MISSOURI.

Medical Faculty of the State of Missouri,	Dr. Jno. B. Johnson, " †Edward H. Leffingwell,
Med. Faculty of St. Louis University,	Dr. R. S. Holmes.

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IOWA.

Med. Department of the University of the State of Iowa,	Dr. A. B. Malcolm.

The following gentlemen were proposed, and elected members by invitation.

Dr. H. B. Brown, - - - -	*Hartford, Vt.*
" W. Griswold, - - - -	*Circleville, O.*
" George Faybian, - - -	*Portland, Me.*
" John Barker, - - -	*Wilton, Me.*
" Lafayette Perkins, - - -	*Farmington, Me.*
" Samuel West, - - -	*Tiverton, R. I.*
" Robert Campbell, - - -	*Pittsfield, Mass.*

Dr. Knight offered the following resolution, which was *adopted.*

Resolved, That a Committee composed of one member from each State, represented in this meeting, be selected by the delegates of the respective States, for the purpose of nominating officers.

A Committee composed of the following gentlemen was accordingly elected.

Dr. Isaac Lincoln,	*Maine.*	Dr. R. S. Steuart,	*Md.*
" W. H. Rockwell,	*Vt.*	" G. L. Corbin,	*Va.*
" J. Bigelow,	*Mass.*	" N. J. Pittman,	*N. C.*
" A. Twitchell,	*N. H.*	" H. R. Frost,	*S. C.*
" D. King,	*R. I.*	" R. D. Arnold,	*Ga.*
" George Sumner,	*Conn.*	" A. T. Morris,	*Ala.*
" Isaac Wood,	*N. Y.*	" B. B. Lenoir,	*Tenn.*
" J. B. Munn,	*N. J.*	" J. P. Harrison,	*O.*
" S. Jackson,	*Pa.*	" James Jones,	*La.*
" T. M. Smith,	*Del.*	" J. B. Johnson,	*Mo.*

Dr. John Evans, *Ill.*

On motion of Dr. Z. B. Adams, the members of the Medical Staff of the Army and Navy of the United States, were invited to seats upon the floor.

The Rules were then suspended, for the purpose of taking up the Reports of the Standing Committees; and the Report of the Committee on Publication, with the Treasurer's Report, (See *Report* G.) was read, accepted, and the following resolutions, which accompanied the former, *adopted.*

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Resolved, That any delegate who is in arrears for an annual assessment shall not be considered as a permanent member.

Resolved, That the annual assessment for the present year shall be three dollars.

Resolved, That those delegates who pay the assessment shall be entitled to one copy of the Transactions for the present year, and that the payment of two dollars in addition shall entitle them to three copies of the same.

Resolved, That Societies which are represented at this meeting of the Association, shall be entitled to copies for their members, at the same rate at which they are furnished to delegates, viz., three copies for five dollars.

After which, the Association adjourned until 3½ o'clock P.M.

Afternoon Session.

The Committee charged with the nomination of officers, unanimously reported the following nominees for the several offices of the Association for the ensuing year; and their nomination was unanimously confirmed.

PRESIDENT,

Dr. JOHN C. WARREN, *Mass.*

VICE PRESIDENTS.

Dr. JOHN P. HARRISON,	*O.*	Dr. AUSTIN FLINT,	*N. Y.*
" HUGH H. MAGUIRE,	*Va.*	" R. S. STEUART,	*Md.*

SECRETARIES.

Dr. ALFRED STILLÉ,	*Pa.*	Dr. HENRY I. BOWDITCH,	*Mass.*

TREASURER.

Dr. ISAAC HAYS, *Pa.*

On motion of Dr. J. L. ATLEE, a Committee of five was appointe to wait upon the President elect, and request him to assume th chair.

This Committee, consisting of Drs. J. L. ATLEE, TWITCHELL, MOR RIS, PARSONS, and HORNER, withdrew to perform their duty, an during their absence, it was moved by Dr. PHELPS, and agreed t that the Committee on Nominations be continued, and requested

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report the names of members for the several Standing Committees of *the* Association.

Dr. GIBBONS moved, that, during the present meeting of the Association, there be two daily sessions, the one commencing at 10 o'clock A.M., and the other at 3½ o'clock P.M. *Carried.*

The Committee appointed for that purpose, introduced the President elect, who was greeted by Dr. STEVENS; and, after returning thanks, Dr. WARREN took the chair.

Dr. CONDIE, Chairman of the Committee on Practical Medicine, presented his Report, and proceeded to read it. The reading was suspended by a motion of Dr. BLATCHFORD, and the Report referred to the Committee on Publication. (See *Report* B.)

Dr. S. H. WILLIAMS presented the following resolution, which was *adopted:*—

Resolved, That the thanks of the Association be presented to Dr. STEVENS, for the able and courteous manner in which he has presided over its deliberations, and to the other late officers of the Association, for the satisfactory manner in which they have discharged their duties; and that the Ex-President and Ex-Vice Presidents be invited to sit upon the platform.

On motion of Dr. TWITCHELL, Dr. STEVENS was added to the Committee on Nominations.

Dr. BLATCHFORD moved that the Rules be suspended, for the purpose of considering an amendment to the Constitution, relative to the rights of permanent members, which had been proposed by Dr. F. C. STEWART, at the meeting of 1848; but, on motion of Dr. STEVENS, action thereon was postponed for the present, and the subject made the order of the day for Wednesday, at noon.

Whereupon, the Association adjourned.

Wednesday, May 2d.

The Committee on Arrangements announced the names of delegates and members registered since the last Report.

Dr. J. P. JEWETT, of Lowell, Mass., was duly elected a permanent member.

Dr. N. R. SMITH, chairman, presented and read the Report of the Committee on Surgery, which was accepted, and referred to the Committee on Publication. (See *Report* C.)

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It was resolved, on motion of Dr. BOWDITCH, that the next morning session be held in the Representatives Hall of Massachusetts.

The order of the day, being a motion to suspend the Rules for the purpose of considering an amendment to the Constitution, relative to the right of voting of permanent members, was then taken up, and the Rules were suspended. On motion of Dr. CONDIE, the proposed amendment was referred to a Select Committee of five, to be appointed by the President.

The President appointed Drs. A. H. STEVENS, G. B. WOOD, D. F. CONDIE, J. KNIGHT, and R. D. ARNOLD.

Dr. GILMAN, acting chairman, presented and read the Report of the Committee on Obstetrics, which was accepted, and referred to the Committee on Publication. (See *Report* D.)

After which the Association adjourned.

Afternoon Session.

Dr. J. P. HARRISON, chairman, presented and read the Report of the Committee on Medical Literature, which was accepted, and referred to the Committee on Publication. (See *Report* F.) The following resolution, appended to said Report, was adopted, viz:—

Resolved, That a Committee of three be appointed to take into consideration the measures recommended in this Report, for the promotion of our National Medical Literature, with instructions to report at the next annual meeting of the Association.

The President appointed Drs. HORNER, CONDIE, and HAYS, on this Committee.

On motion of Dr. G. B. WOOD, the same Committee was directed to report on the subject of an international copy-right law.

The Association then adjourned.

Thursday, May 3d.

The Association assembled in the Representatives Hall of the Capitol, at the appointed hour.

The minutes of Wednesday were read and approved.

On the proposition of Dr. HAYS, Prof. AGASSIZ, of Cambridge, Mass., was duly elected a permanent member of the Association.

The Report of the Committee on Medical Education, Dr. F. C. STEWART, Chairman, was, in his absence, presented and read by Dr. M. L. TAFT. (See *Report* E.)

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The reading of the Report was suspended, that the Committee on Nominations might present the lists of Standing Committees proposed by them.

Their Report was accepted, and the nominations confirmed as follows:—

Committee on Medical Sciences.

Dr. JOHN WARE,* Boston, *Chairman.*

Dr. J. BIGELOW, Boston,
" J. B. S. JACKSON, Boston,
" A. B. MALCOLM, Dubuque, Iowa,
Dr. JAS. MOULTRIE, Charleston, S. C.
" G. EMERSON, Philadelphia,
" D. KING, Newport, R. I.

Committee on Practical Medicine.

Dr. J. K. MITCHELL, Philadelphia, *Chairman.*

Dr. R. LA ROCHE, Philada.,
" F. WEST, Philada.,
" D. M. REESE,† N. York.
Dr. JAMES JONES, N. Orleans,
" R. D. ARNOLD, Savannah,
" SMITH, Ind.

Committee on Surgery.

Dr. R. D. MUSSEY, Cincinnati, *Chairman.*

Dr. W. M. AWL, Columbus, O.,
" A. B. SHIPMAN, Syracuse, N. York,
" U. PARSONS,‡ Providence, R. I.,
Dr. L. A. DUGAS, Augusta, Ga.,
" S. PARKMAN, Boston,
" J. R. WOOD, N. York.

Committee on Obstetrics.

Dr. T. G. PRIOLEAU, Charleston, S. C., *Chairman.*

Dr. L. D. FORD, Augusta, Ga.,
" ROBERT LEBBY, Charleston, S. C.,
" JOSIAH BARTLETT, Stratham, N. H.
Dr. H. F. ASKEW, Wilmington, Del.,
" JOHN EVANS, Chicago, Ill.,
" ISAAC LINCOLN, Brunswick, Me.

* Resigned, and Dr. USHER PARSONS, Providence, R. I., appointed in his place.

† Resigned, and Dr. J. A. SWETT, New York, appointed in his place.

‡ Transferred to the Committee on Medical Sciences, and Dr. GEORGE FOX, Philada., appointed in his place.

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Committee on Medical Education.

Dr. J. ROBY, Baltimore, Md., *Chairman.*

Dr. R. S. STEUART,* Balt.,
" G. C. M. ROBERTS, Balt.,
" R. W. SILVESTER, Norfolk, Va.,
" F. A. RAMSEY, Knoxville, Tenn.,
Dr. GEORGE SUMNER, Hartford, Conn.,
" W. H. ROCKWELL, Brattleboro', Vt.

Committee on Medical Literature.

Dr. ALFRED STILLÉ, Philada., *Chairman.*

Dr. F. G. SMITH, Philada.,
" T. H. YARDLEY, Philada.,
" P. C. GAILLARD, Charleston, S. C.
Dr. A. T. MORRIS, Montgomery, Ala.,
" J. FITHIAN, Woodbury, N.J.,
" J. B. JOHNSON, St. Louis, Mo.

Committee on Publication.

Dr. I. HAYS, Philada., *Chairman.*

Dr. A. STILLÉ, Philada.,
" H. I. BOWDITCH, Boston,
" D. F. CONDIE, Philada.,
Dr. B. F. BARKER, Norwich, Ct.
" ISAAC WOOD, N. York,
" N. J. PITTMAN, Rocky Mt. N. C.

Dr. STEVENS offered the following resolution:—

Resolved, That a Special Committee of seven be appointed o *Forensic Medicine;* a like Committee on *Indigenous Botany an Materia Medica;* and a like Committee on *Hygiene;* the membe thereof to be nominated by the nominating Committee.

Dr. LUTHER V. BELL proposed, as an amendment, that so mu of Forensic Medicine as belongs to the subject of Lunacy, in all i relations, be referred to a separate Committee, of three membe which was *lost*, and the original resolution *adopted.*

The reading of the Report on Medical Education was resume and concluded. Dr. TAFT presented certain resolutions, transmitt by the Academy of Medicine of N. Y., which were laid upon t table.

Dr. JNO. WARE presented and read, with the consent of the Co

* Resigned, and Dr. BLATCHFORD, Troy, N. Y., appointed in his place.

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mittee on Education, and as an Appendix to their Report, a paper containing the views of the Medical Department of Harvard University upon the subject of lengthening the lecture term. (See *Documents with Report* E.)

The Report of the Committee on Education was then, with its appended documents, received and referred to the Committee on Publication, and the resolutions attached to the Report made the order of the day for 3½ P. M.

A letter from Dr. JOHN WATSON, of the Committee on Medical Education, was introduced by Dr. STEVENS, and laid upon the table.

The Committee on Nominations reported the following named gentlemen for members of the several Committees under Dr. STEVENS' resolution.

Committee on Forensic Medicine.

Dr. A. H. STEVENS, N. York, *Chairman.*

Dr. LUTHER V. BELL, Boston,
" PLINY EARLE, N. York,
" W. H. ROCKWELL, Vt.,
Dr. ROBERT WATTS, JR., N. York,
" R. S. STEUART, Baltimore,
" J. KNIGHT, N. Haven, Ct.

Committee on Indigenous Botany and Materia Medica.

Dr. ELI IVES, N. Haven, *Chairman.*

Dr. G. L. CORBIN, Warwick Co., Va.,
" H. R. FROST, Charleston, S. C.,
" W. H. DAVIS, Baltimore,
Dr. N. S. DAVIS,* N. Y.,
" C. B. COVENTRY,† Utica, N. Y.,
" J. P. HARRISON, Cincinnati.

Committee on Hygiene.

Dr. J. M. SMITH, N. Y, *Chairman.*

Dr. A. K. GARDNER, N. Y.,
" E. JARVIS, Dorchester, Mass.,
" A. T. M. COOKE, Norfolk, Va.,
Dr. R. S. HOLMES, St. Louis, Mo.,
" G. EMERSON, Philada.,
" J. C. SIMONDS, N. Orleans.

On motion of Dr. J. P. HARRISON, the nominating Committee were requested to propose, at the afternoon session, a place for the next annual meeting of the Association.

* Resigned, and Dr. B. B. LENOIR, Roane County, Tenn., appointed in his place.

† Resigned, and Dr. W. B. COCHRAN, Middleburg, Va., appointed in his place.

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On motion of Dr. HARRISON, the Report of the Committee on the Medical Sciences, presented by him, was, owing to the absence of the chairman, Dr. YANDELL, referred to the Committee on Publication. (See *Report* A.)

Dr. PARRISH presented, and read that part of the Report of the Committee on Hygiene, which was prepared by the chairman, Dr. WYNNE, who was prevented from attending the meeting. (See *Report* I.)

The nominating Committee reported the following names to fill vacancies, occasioned by gentlemen who had been previously appointed, but declined to serve upon Standing Committees.

Committee on Medical Education.—Dr. THOS. E. BOND, Jr.,* Baltimore, in place of Dr. R. S. STEUART.

Committee on Indigenous Botany and Materia Medica.—Dr. B. B. LENOIR, of Roane County, Tenn., in place of Dr. N. S. DAVIS; and Dr. W. B. COCHRAN, Middleburg, Va., in place of Dr. C. B. COVENTRY, N. Y.

Committee on Practical Medicine.—Dr. J. A. SWETT, N. Y., in place of Dr. REESE.

The Committee unanimously recommended CINCINNATI as the place for the next annual meeting of the Association. They also proposed, as members of the Standing Committee of Arrangements,

Dr. DRAKE, Cincinnati, *Chairman.*

Dr. DODGE, Cincinnati.	Dr. LAWSON, Cincinnati.
" JUDKINS, "	" RICHARDS, "
" RIVES, "	" STRADER, "

The Report of the Committee was accepted, and its recommendations confirmed.

The same Committee was authorized to fill any vacancies occurring in the Standing Committees before the close of the present annual meeting.

Prof. SAMUEL JACKSON, Philadelphia, presented as a part of the Report on *Hygiène*, and read, an Essay on the Influence of Tea and Coffee used as food. (See *Documents with Report* I.)

Dr. JOSIAH CURTIS, presented as a part of the same Report, and read, a Paper on the Sanitary Condition of Massachusetts. (See *Documents with Report* I.)

Before this communication was finished, the Association adjourned.

* Declined, and Dr. BLATCHFORD, Troy, N. Y., appointed in his place.

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Afternoon Session.

The order of the day was suspended to enable Dr. CURTIS to conclude his Report; but shortly afterwards, on motion of Dr. STEVENS, its further reading was dispensed with, and it, with the Paper of Dr. JACKSON, referred to the Publishing Committee.

Dr. N. S. DAVIS presented the Report of the Committee on *Indigenous Botany*, which was in like manner referred. (See *Report* J.)

The Association then went into Committee of the Whole, Dr. Knight in the chair, for the purpose of discussing the resolutions appended to the Report on Medical Education.

After some time spent in debate, the Committee rose and reported progress, and its report was accepted.

On motion of Dr. STEVENS, the whole subject of Medical Education, together with the resolutions of the Committee on that subject, were referred to a Committee of three, with instructions to report at the next morning session.

On motion of Dr. WATTS, the communication of the New York Academy of Medicine, and the letter of Dr. WATSON, were taken from the table, and referred to the same Committee.

The PRESIDENT nominated Drs. STEVENS, G. B. WOOD, and KNIGHT, as members of this Committee, and the nomination was confirmed.

On motion of Dr. STILLÉ, and in accordance with a request contained in a letter from Dr. F. C. STEWART to the President, the Committee on Publication was requested to place at the disposal of Dr. STEWART ten copies of the published Transactions of the Association for the past and present years, to be by him presented to "gentlemen in Europe and this country, as an acknowledgment for their kind assistance in furnishing the Committee with statistical and other information embodied in the Report."

After which the Association adjourned.

Friday, May 4th.

The President in the chair.

The minutes were read and approved.

The Committee on Arrangements announced the names of several delegates and members registered since the last Report.

Dr. H. P. BISSELL, of *Utica, N. Y.*, was duly elected a permanent member.

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On motion of Dr. WATTS it was *Resolved*, That, after the adjournment of the Association, the several Standing Committees shall have power to supply all vacancies occurring in them.

Dr. STEVENS, from the Special Committee to whom were referred the resolutions appended to the Report on Medical Education, &c., presented the following

REPORT.

The Committee to whom were referred the resolutions offered by the Standing Committee on Medical Education, the letter of Dr. JOHN WATSON, and the resolutions of the New York Academy of Medicine, have the honor to report, that they have examined the several documents mentioned, and have agreed to recommend to the Association the adoption of the following resolutions.

1. *Resolved*, That the Association reiterate their approval of the resolutions in reference to medical education adopted by the Convention, which met in Philadelphia in May, 1847, and contained in pages 73 and 74 of the published proceedings of that Convention.

2. *Resolved*, That the attention of the Medical Colleges be again directed to the resolutions of the Committee on Preliminary Education, adopted by the Medical Convention of 1847, and that they be advised to require from their students that they shall in all instances present certificates of due preliminary acquirement prior to graduation.

3. *Resolved*, That physicians, generally, throughout the Union, be advised and requested to require of those wishing to become their pupils, evidence of a proper general education, before admission into their offices.

4. *Resolved*, That the Association does not sanction or recognize "College Clinics" as substitutes for Hospital Clinical instruction, and that the Medical Colleges be again advised to insist, in all instances, where it is practicable, on the regular attendance of their pupils, during a period of six months, upon the treatment of patients in a properly conducted hospital, or other suitable institution devoted to the reception and cure of the sick.

5. *Resolved*, That in accordance with a resolution of the American Medical Association, adopted May 4th, 1847, "it is earnestly recommended to the physicians of those States in which State Medical Societies do not exist, that they take measures to organize them before the next meeting of this Association.

6. *Resolved*, That the State Societies be recommended, after they

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shall have been organized, to recognize as regular practitioners none who have not obtained a degree in medicine, or a license from some regular medical body, obtained after due examination.

7. *Resolved*, That the Association recommend to the various schools of medicine to meet at Cincinnati before the next annual meeting of this Association, and present a plan for elevating the standard of medical education to this Association.

The Committee do not deem it expedient that the Association should now adopt, further than may have been done in the preceding resolutions, the recommendations offered in the several documents referred to them.

On motion of Dr. HARRISON, the Report was accepted, and the Association went into Committee of the Whole, Dr. ARNOLD in the chair, for the purpose of considering the resolutions attached to the Report. These were taken up successively, and, after prolonged discussion, were reported to the Association without amendment, but with the addition of the following, proposed by Dr. T. E. BOND, JR.

Resolved, That this Association recommend the encouragement of private medical institutions, strongly advising that Dispensary practice be made, as far as practicable, a part of the means of instruction.

The resolutions reported by the Committee of the Whole were then *adopted*.

Dr. STILLÉ offered the following resolution, which was *unanimously adopted*.

Resolved, That the members of the American Medical Association cannot separate on this occasion, without expressing the lively sense which they entertain of the courtesy, kindness, and hospitality so liberally extended to them by the Legislature of Massachusetts, the Medical Society of that State, the Faculties of Harvard University, and the Medical Profession, and private citizens of Boston, and which have so largely contributed to lighten their labours, to harmonize their opinions, and to draw more closely the ties of personal friendship.

Dr. BOWDITCH presented the following resolutions, which were also *unanimously adopted*:—

Resolved, That the thanks of this Association are due to Mr. STEVENS, the Sergeant-at-Arms of Massachusetts, for his courtesy and gentlemanly deportment in making all the arrangements neces-

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sary for the convenience of the members during the days of session of the Association in the rooms under his charge.

Resolved, That the thanks of this Association are due to JOHN A. LOWELL, Esq., of Boston, for his great courtesy in allowing this Association to use, for the first two days of its meeting, the Hall of the Lowell Institute.

The Committee appointed to consider the subjects presented by the Report on Medical Literature, and the resolution of Dr. WOOD, obtained permission to report *in part*, and submitted the following resolution:—

Resolved, That a Committee of three be appointed to memorialize Congress in favour of an International Copy-right Law.

This was so far amended as to require the proposed Committee to prepare a memorial upon the subject, and submit it to the Association at its next annual meeting. The amended resolution was then *adopted*, and Drs. G. B. WOOD, T. E. BOND, Jr., and I. HAYS, appointed as the Committee.

Dr. EVANS offered the following preamble and resolution, which were *adopted*.

Whereas, merit should be the test by which one individual is preferred to another; and, whereas, the places of profit and honour in our profession should be open to the competition of all, in order that the best selections may be made, therefore,

Resolved, That Trustees and others exercising the office of appointing Professors in Medical Schools, be requested to adopt the system of *concours*, or public trials, among the means resorted to for calling out the talent of the profession, and ascertaining the qualifications of applicants.

Dr. DUGAS proposed the following amendments of the Constitution, viz: strike out the 1st paragraph of the 5th section, and read in lieu thereof,

"The following Standing Committees, each composed of five members, shall be organized at every annual meeting, for preparing, arranging, and expediting business for each next ensuing year, and for carrying into effect the orders of the Association not otherwise assigned, namely:—

A Committee on Arrangements.
do do Anatomy, human, comparative and microscopic.
do do Physiology, human and comparative.
do do Materia Medica.
do do Chemistry, medical and organic.

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A Committee on Pathological Anatomy.
do do Principles and Practice of Medicine.
do do do do do Surgery.
do do do do do Obstetrics.
do do Hygiene and Sanitary Measures.
do do Forensic Medicine.
do do Medical and Vital Statistics.
do do American Medical Biography.
do do Medical Education.
do do Publication."

Strike out the word "six," in the 9th paragraph of the 5th section, and place this immediately after the 2d paragraph of said section.

Strike out the 3d, 4th, 5th, 6th, and 8th paragraphs of the 5th section, and insert in lieu thereof, and after the 7th paragraph of said section the following:—

"The other Committees shall prepare and submit an Annual Report upon all the important researches and improvements that may have been made in the particular departments assigned them, giving special attention to such as may be American."

Laid over, under the rule for amendments to the Constitution.

A like disposition was made of the following, proposed by Dr. Hays.

To strike out all that relates to the Standing Committees "On Medical Sciences," "On Practical Medicine," "On Surgery," "On Obstetrics," "On Medical Education," and "On Medical Literature."

Dr. G. B. Wood submitted the following preamble and resolution.

Whereas, A document prepared by the Medical Faculty of Harvard University, and appended to the Report of the Committee on Medical Education, contains an elaborate defence of the limitation of the courses of medical instruction in the schools to four months; and, *whereas*, this document has been referred, along with the Report of the Committee on Medical Education, to the Publishing Committee, and, if it be not mistaken by the public as a representation of the views of this Association, may at least have the effect of contravening those views, unless they be properly supported; therefore,

Resolved, That a Committee be appointed to prepare at leisure a statement of the facts and arguments which may be adduced in favour of the prolongation of the courses to six months, and that the

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statement thus prepared be printed in the forthcoming volume of the transactions of the Association.

The discussion upon this proposition was interrupted by adjournment.

Afternoon Session.

Dr. U. PARSONS, from a Select Committee appointed at the meeting of 1848, made a Report upon the subject of adulterated and spurious drugs, and offered the following resolutions.

Resolved, That a Committee, consisting of two delegates from each State here represented, be chosen by the President, to note all the facts that come to their knowledge with regard to the adulteration and sophistication of drugs, medicines, chemicals, &c., and to report them at the next annual meeting.

Resolved, That the President be requested to sign and forward to the Philadelphia College of Pharmacy a letter, stating that the Association are pleased to hear of its laudable intention, to prepare and publish some simple instructions for detecting adulterations in medicines, adapted to the understanding of the people generally, and would be highly gratified could they welcome its appearance before the next annual meeting.

On motion, the Report was referred to the Committee on Publication, the resolutions were adopted, and the following gentlemen appointed to serve upon the Committee.

Pa.,	Dr.	R. M. HUSTON, *Chairman*,	*Philadelphia.*
"	"	HENRY BOND,	"
N. Y.,	"	N. S. DAVIS,	*New York.*
"	"	GEORGE HADLEY,	*Buffalo.*
Mass.,	"	J. B. S. JACKSON,	*Boston.*
"	"	H. I. BOWDITCH,	"
Md.,	"	E. W. THEOBALD,	*Baltimore.*
"	"	G. C. M. ROBERTS,	"
Ohio,	"	J. BUTTERFIELD,	*Columbus.*
"	"	J. P. WHITE,	*Cincinnati.*
Conn.,	"	ELI IVES,	*N. Haven.*
"	"	GEORGE SUMNER,	*Hartford.*
R. I.,	"	GEORGE CAPRON,	*Providence.*
"	"	C. W. PARSONS,	"
N. H.,	"	JOSIAH BARTLETT,	*Stratham.*
"	"	E. R. PEASLEE,	*Dartmouth College.*

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Vt.,	Dr.	E. S. Carr,	*Castleton.*
"	"	Horace Hatch,	*Burlington.*
Me.,	"	Gilman Davies,	*Portland.*
"	"	Isaac Lincoln,	*Bowdoin College.*
S. C.,	"	P. C. Gaillard,	*Charleston.*
"	"	H. R. Frost,	"
La.,	"	E. H. Barton,	*N. Orleans.*
"	"	J. C. Simonds,	"
Ga.,	"	Paul F. Eve,	*Augusta.*
"	"	J. B. Tufts,	*Savannah.*
Ala.,	"	Boling A. Blakey,	*Montgomery.*
"	"	B. R. Jones,	"
Mo.,	"	J. B. Johnson,	*St. Louis.*
"	"	Thomas Reyburn,	"
Ky.,	"	S. Annan,	*Lexington.*
"	"	L. P. Yandell,	*Louisville.*
Ind.,	"	M. M. Latta,	*Goshen.*
"	"	Daniel Meeker,	*Laporte.*
Tenn.,	"	S. H. Harris,	*Nashville.*
"	"	B. B. Lenoir,	*Roane Co.*
Ill.,	"	W. G. Edwards,	*Alton.*
"	"	J. C. Frye,	*Peoria.*
Va.,	"	G. L. Upshur,	*Norfolk.*
"	"	H. Howard,	*University of Virginia.*
N. J.,	"	Lyndon A. Smith,	*Newark.*
"	"	Joseph Parrish,	*Burlington.*
Del.,	"	James Couper,	*New Castle.*
"	"	Lewis P. Bush,	*Wilmington.*
N. C.,	"	N. J. Pittman,	*Rocky Mount.*

The discussion of Dr. G. B. Wood's resolution, in relation to the length of the lecture term, was then resumed, and it was finally *adopted.* The President appointed upon the Committee Drs. S. Jackson (Prof.), J. L. Atlee, and Stillé.

Dr. Stevens presented the following Report:—

The Committee appointed to consider and report on the proposal to alter the Constitution, so as to give permanent members the right of voting, report adversely to said proposal.

Dr. Hays moved the adoption of the Report.

Dr. Calkins moved, as an amendment, that the Report be accepted, and referred to the next annual meeting. But, on motion of Dr. Carr, the whole subject was laid upon the table.

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Dr. STEVENS submitted the following preamble and resolution, which were ordered to lie on the table.

In view of the advantage derived by the Associations in East Tennessee, and in the State of New York, from popular lectures, designed to enlighten the public mind in relation to the new position of medical men in their relation to society,

Resolved, That the American Medical Association recommend medical men in Associations, and individually, by public lectures, and otherwise, to enlighten the public mind in regard to the duties and responsibility of the medical profession, and their just claims to the confidence of the public.

Dr. PHELPS, and Dr. GIBBONS, introduced resolutions prescribing modes of limiting the length of time occupied in reading the annual reports to the Association, but they were passed by in favour of a resolution offered by Dr. HAYS, which was *adopted*, as follows:—

Resolved, That the attention of the several Standing Committees be directed to the articles of the Constitution prescribing their duties, and which require them to report upon the progress of medicine in this country alone, and only "during the year of their service."

Dr. WARE submitted the following resolution, which was *adopted*.

Resolved, That the Committee on Practical Medicine be instructed to inquire into the expediency of adopting the English language exclusively in the writing of prescriptions, and in all directions for the composition and administration of medicines, and to report at the next annual meeting of the Association.

A resolution offered by Dr. BATCHELDER, providing for the publication, by the several counties and districts represented in this Association, "of all the Physicians and Surgeons of such districts, who are recognized as regularly educated practitioners," was laid on the table. A similar disposition was made of a proposed amendment to the Constitution, introduced at the last annual meeting by Dr. DUNBAR, and which provides for the appointment of a Standing Committee on "American Medical Biography."

Dr. GEORGE B. WOOD, of Philadelphia, rose, and stated that he had a brief report to make, as a delegate from this Association to the British Association, and to the Provincial Medical and Surgical Association of England, the annual meetings of which he had attended in August last, in fulfilment of the objects of his appointment. Of the British Association, he had only to say, that he was treated with all due personal courtesy, and invited to participate in the proceedings of that body with the privileges of a member. By

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the Provincial Medical and Surgical Association he had been received with the most flattering distinction, in his capacity as a delegate. The Association appeared to be much gratified by the compliment paid them; expressed through their President their high appreciation of this Society, and their reciprocation of the sentiments conveyed to them; and passed a resolution, unanimously requesting him (Dr. WOOD) to convey their thanks to the American Association.

On motion, it was ordered that a minute be made of Dr. WOOD's Report.

Dr. STEVENS presented the following resolution, which was *unanimously adopted.*

Resolved, That the thanks of this Association be given to their President, Dr. JOHN C. WARREN, for the dignified, impartial, and courteous manner in which he has discharged his duties.

Dr. J. B. JOHNSON introduced the following preamble and resolution, originally presented by him to the Medical Convention which met at Philadelphia, in 1847; and they were referred to the Standing Committee on Medical Education, accordingly.

Whereas, numberless and important evils result from the almost universal practice of allowing persons, wholly ignorant of Drugs and Medicines, to engage as Apothecaries; and still greater, from the universal traffic in patent and secret remedies:—

Therefore resolved, That the Committee on Education inquire into the expediency of establishing a School, or Schools of Pharmacy in the respective States, for the special purpose of preparing persons for the business of Apothecaries; and also the expediency of adopting a rule, that no Physician ought to patronize a Druggist or Apothecary who deals in patent and secret medicines; and report at the next annual meeting of the Association.

Dr. B. F. BARKER gave notice of the following proposed amendment of the Constitution:—

"That the 7th Section be amended so as to read: No amendment or alteration shall be made in any of these articles, except at the *third* annual meeting after such amendment or alteration may have been proposed."—

Dr. E. R. PEASLEE gave notice of the following proposed amendment:—

"There shall be a Standing Committee on Anatomy and Physiology."

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Dr. THOMAS WOOD presented the following resolution, which was *adopted:—*

Resolved, That the Committee on Medical Science for 1849, be instructed to inquire into the expediency of establishing a Board, to analyze the quack remedies and nostrums now palmed upon the public, and to publish the results of their examinations in a newspaper to be established for the purpose; and, further, to append such plain views and explanations thereto, as will enlighten the public in regard to the nature and dangerous tendencies of such remedies.

Dr. GIBBONS offered the following resolutions, which were *unanimously adopted:—*

Resolved, That the thanks of the Association be presented to the Committee of Arrangements, for the very efficient and agreeable manner in which they have discharged the arduous duties that have devolved upon them; and to the Vice-Presidents, Secretaries, and Treasurer, for the diligence and ability which they have shown in their respective offices.

Resolved, That the Association respectfully presents its thanks to the officers and managers of the various public and other institutions, for the privilege of admission generously extended by them to the members of the Association.

Dr. Z. B. ADAMS, on behalf of the Committee of Arrangements, replied in an appropriate address; and, after receiving the congratulations of the President on the auspicious termination of its annual labours,

The Association adjourned *sine die.*

ALFRED STILLÉ,
HENRY I. BOWDITCH, } *Secretaries.*

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REPORTS

OF STANDING AND SPECIAL

COMMITTEES.

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A.

REPORT OF THE COMMITTEE ON MEDICAL SCIENCES.

The Committee on Medical Sciences is directed to prepare "a Report on the progress of the Medical Sciences in America; noticing, as occasion may require, the more important improvements and discoveries in Anatomy, Physiology, Hygiène, General Pathology and Therapeutics, Medical Jurisprudence, Materia Medica, and other branches of Natural Science, bearing directly on the condition and progress of medical knowledge in America."

In the discharge of their duty, the committee set out with a determination to conform as strictly as practicable to the letter of this requirement, and to prepare a report on American Medical Science; but they had not proceeded far before they were forced to abandon this plan. The slightest inspection of their labours, will show that they have not restricted themselves in their retrospect to medicine at home. In this, they have not only followed the example of their predecessors, but pursued the course which, after much deliberation, they feel persuaded will make their report most satisfactory. With all their great desire to do full justice to American medicine, they do not venture to hope that they have omitted nothing which ought to have had a place in their report. Some topics worthy of notice have, no doubt, been overlooked, and to some the committee were not able to obtain access. When, toward the close of the year, they engaged in collecting materials for their report, they found that their files of medical journals were incomplete; but the discovery was made at too late a day to remedy the defect. In the missing numbers there are doubtless papers of interest, which would have enhanced the value of the present retrospect. The committee have the consolatory reflection, that these deficiencies will be supplied by those who shall come after them, and that, in a short time, full credit will be given to all who have contributed anything valuable to the stock of American medical science.

For the most part, the committee have not gone back beyond the year of their service, but in some cases they have found it necessary

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to do so, in order to render complete the history or statistics of a subject. Even with this limitation, they find that their report has extended far beyond the length to which they hoped to restrict it. They have studied to avoid those subjects which come properly under the notice of other committees; but it will, nevertheless, be remarked, that they have occasionally touched upon Practical Medicine, and, in their analysis of etherization, have touched, though very sparingly, upon Surgery and Obstetrics. The medical sciences are so intertwined, that it is no easy matter to assign strict limits to the various departments.

Hygiène, one of the most interesting of the Medical Sciences, having been very properly referred to a special committee at the last meeting of the Association, that head, it will be perceived, is dropped in this report. The topics which remain are so numerous that the committee have necessarily passed hurriedly over some, and omitted all notice of many; at the same time that they have dwelt longer upon some than many readers, if not the Association, would probably have desired. As the selection must depend upon individual tastes and judgments, no committee can hope, in the performance of their task, to satisfy all. From the nature of the task, it must be executed somewhat hastily, and generally by men engaged in other arduous pursuits. In the present instance, the committee feel that, owing to these circumstances, they will have need of the indulgence of the Association.

The subjects are presented in the order in which they are named in the resolution, under which the committee acted.

ANATOMY AND PHYSIOLOGY.

1. *Intimate Structure of the Articular Cartilages.*—Dr. Joseph Leidy* has made another valuable contribution to minute anatomy, in a paper on the intimate structure of the articular cartilages. When one of these cartilages is submitted to the microscope, he remarks, two distinct structures are observable in it; cartilage corpuscles, and an intercellular substance, or matrix. "*Cartilage corpuscles* are solid nucleolo-nucleated cells, imbedded in the cartilage matrix, and varying in a slight degree in different parts of the articular cartilage." Some are single, but most are in groups of two, up to twenty-two, which is the largest number Dr. L. has remarked. The particular arrangement of the cell groups, which is represented in accompany-

* American Journ. Med. Sci., April 1849.

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ing plates, is regarded by most modern anatomists as the cause of the fracture of the cartilage in a particular direction. "The cells, when high, or isolated are round, or elliptical in outline, but when grouped they are flattened, or have the appearance of compression upon the sides presented to each other, and rounded at the circumference of the group, with the two end cells frequently elongated, or even brought to a point." They present points of difference in different parts of the cartilage; the cell wall appears blended with the intercellular substance. The cell contents consist of a translucent, homogeneous substance, which often contains fat globules.

Cartilage matrix, or the intercellular substance of the articular cartilage, is most abundant in the deeper part of these tissues. It is translucent, with a faint yellowish hue and filamentous structure, the fibres of which are rendered more translucent by potassa, and stained yellow by iodine. These filaments lie parallel with one another, and adhere firmly together, but may easily be separated after maceration in dilute muriatic acid, which removes the earthy constituents. In tearing off fine shreds, a group of cells is often torn through, which, Dr. L. thinks, "is alone sufficient to indicate that the fracture of articular cartilage in a definite direction does not depend upon the arrangement of the cell groups," as some anatomists have contended.

Synovial Membrane, in its relation to the Articular Cartilage.—Dr. Leidy has always failed to detect the slightest trace of synovial membrane in the adult, upon the free surface of the articular cartilage. In the fœtal state, it exists in a very distinct form; but after birth it appears to be destroyed by pressure, &c. Several peculiarities in the structure of the articular cartilages are represented in the plates, as numerous minute lacunæ, and, again, fibres or columns of bone, penetrating the structure of the cartilage.

Development and Growth of the Articular Cartilages.—These cartilages do not exist until the epiphyses of the bones are ossified. In the process of ossification, the cartilage appears to be pushed before the epiphysis, "resulting from an interstitial growth, depending upon the division of the primary cartilage cells, the probable development of others, and the increase of the matrix, or intercellular substance." How does this substance increase in quantity? By a direct deposit from the liquor sanguinis, or through the agency of the cartilage corpuscles, or organic cells of the tissue? Dr. L. supposes it is "formed from imbibed albumen, through the agency of the cartilage cells," the surrounding matter being formed within the

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cells and then exosmosed, and the cell life extending its formative power beyond the precincts of the cell wall. After a certain period, "the cartilage cells increase in number by division, and probably also by the origination of new cells."

Of the Nutrition of the Articular Cartilages.—During their development and growth they possess an interstitial nutrition; but are there waste and repair, as in most other tissues, after the cartilages are fully formed? Dr. L. thinks there are. The synovia he considers the nutritive fluid. He has proved, by repeated experiments, that the cartilages are quite capable of imbibing it, and it is particularly rich in albumen, the main element of nutrition. The wear of the articular cartilages, he believes, must be considerable, from year to year, under the weight of the body, and the constant friction to which many of them are subjected. Repair is constantly going on by interstitial nutrition, which, though slow, is sufficient to compensate for the loss of cartilage from this cause.

2. *Minute Structure of the Lungs.*—Mr. Rainey* has given an interesting account of the minute anatomy of the lungs, the principal points of which are embraced in the following summary: "With respect to the bronchial tubes, these are, for the greater part of their course, cartilaginous; but, at a certain distance from the surface, the cartilaginous rings are lost, and the canal is continued by the lining membrane alone. Having arrived about one-eighth of an inch from the surface, this membrane also becomes deficient, and the air passages then appear to be formed solely by the air cells between which they pass. They are then termed intercellular passages. The membrane of the bronchial tubes is supplied by a distinct set of blood-vessels, which, at the abrupt termination of the membrane, anastomose with those of the air cells. The intercellular passages are at first circular, and like the tubes of which they are a continuation, do not at first communicate with any air cells; the communication, however, is very free towards the peripheral destination of the canal. A remarkable anatomical fact announced by Mr. Rainey, is, that the mucous lining of the bronchial tube does not, as is generally supposed, continue along the intercellular spaces and into the air cells; a circumstance which, as he justly observes, sufficiently explains the different effects of inflammation of the tubes and of the air cells; the latter, which are lined

* Prov. Med. and Surg. Journ., Jan. 1848.

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by fibro-cellular tissue, being accompanied by the deposition of fibrin instead of mucus. The air cells open upon the bronchial tubes and intercellular passages by well-defined circular apertures, surrounded by a ring of fibres and a dense plexus of capillary vessels. These vessels, in the lungs of mammals, run between two layers of the pulmonary membrane, so that there is but one vascular network between two given cells, and the blood is aerated on each side. In the lungs of the frog, serpent, &c., there are two plexuses between any two cells. Mr. Rainey holds that the fœtus, prior to the act of respiration, possesses fully formed air cells, which are also surrounded by capillary plexuses."

3. *Anatomy of the Dodo.*—A peculiar interest invests everything that relates to the history of this bird, from the circumstance that almost within our own time the entire species has become extinct, and some naturalists had begun to doubt, as fabulous, the accounts given of it by the earlier voyagers to Mauritius. All such doubts have given way to the discovery of the head and foot of the bird in several European museums; but another question has been started in reference to it, which has occupied some of the ablest anatomists and naturalists of the day, namely, "the zoological position of this anomalous, and by some supposed to be fictitious, creation." Mr. Strickland, and Dr. Melville, have produced an elaborate work on this subject, in which this question receives a satisfactory answer.* Mr. Strickland says, of this massive and clumsy bird, that "we cannot form a better idea of it, than by imagining a young duck, or gosling enlarged to the dimensions of a swan." He adopts the idea first suggested by Professor Reinhardt, of Copenhagen, that the Dodo belongs to the family of *Columbidæ*, or pigeons; "that it is henceforth to take rank as the colossal, brevipennate, frugivorous PIGEON." He was brought to this conclusion by the minute and admirable researches of his coadjutor, Dr. Melville, into the anatomical peculiarities of the foot and head of the bird. And so the position of this "gigantic immaturity" among its more fortunate brethren of the feathered tribe may be considered finally settled.

4. *Multiplication of Vegetable Cells by Division.*—Some interesting observations on this subject occur in a memoir read by Professor

* Brit. and For. Med.-Chirurg. Rev., Oct. 1848.

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Mitscherlich,* before the Royal Academy of Berlin, on the development and composition of the confervæ. They accord with the account of the process given by Mohl, and confirmed by Henfrey, as to the mode in which the multiplication of vegetable cells takes place by simple division. The process commences by a doubling inwards of the "primordial utricle," or lining membrane of the cell, which detaches itself from the proper cell wall, and exhibits an hourglass constriction round its middle. The constriction continues to increase until the original cell cavity is divided into two parts, the communication between which is entirely closed up. Between the two layers of the primordial utricle thus folded in, a new layer of cell membrane is subsequently formed; and thus the two new cells are at last completely divided from one another. The opinions of observers are becoming more and more in favour of the view, that multiplication by cell division is the regular mode of increase in vegetating or growing parts. On the other hand, it is generally agreed that spores, pollen, and embryos, are produced by free cell formation from nuclei."

5. *Blood Corpuscles of the Human Embryo.*—Mr. Paget,† who has examined the blood of a fœtus four weeks old, gives the following account of it: "The great majority of the red corpuscles presented a circular outline, and as they rolled over appeared spheroidal and vesicular. Their surfaces were smooth, and as they dried, portions of their edges were incurved, and folded towards their centres. They were apparently more deep-colored than in adult blood. The nuclei were circular, with well-defined dark outlines, and darkly nebulous, as if granulated. All the corpuscles were nucleated; some contained two nuclei, and were ovoidal, and larger than the rest. The measurements of the spheroidal corpuscles were from 1-2100 to 1-2800th of an inch in diameter; that of the nuclei from 1-3700 to 1-4500th. Of the bi-nucleated cells the measurements were 1-1500 by 1-2300th of an inch." This is the earliest period at which the blood of the fœtus has ever been submitted to microscopic inquiry.

6. *Capillary Circulation.*—M. Bourgery,‡ in addition to the capillary system of vessels at present admitted by anatomists, and

* Annals of Natural History, June 1848.

† London Med. Gaz., Feb. 1849.

‡ Monthly Journ., Dec. 1848, from Com. Red., Sept. 1848.

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which he considers as forming merely an anastomosis between the venous and arterial radicles, unconnected with the vital changes going on in the tissues, describes a circulation of *capilliculi*, forming a diverticulum of the general circulation, and pervading more minutely than the capillaries the ultimate elements of every organ. These he regards as the proper and *special organic* circulation, by which, in different organs, the functional changes of secretion, nutrition, &c., are carried on. The *general* circulation in itself does not produce any functional changes, but merely preserves unbroken, and independent of the activity of the special circulation, the progressive movement of the blood, which at all times passes over in part from the arterial to the venous system, through the capillaries; while the *capilliculi* receive a part of it for elaboration in the special tissues to which they are destined. These capilliculi are stated to be impervious to all particles which are not in solution; the blood corpuscles do not pass through them; but still they may always be traced, varying in disposition according to the organ or tissue in which they are situated. For the most part, M. B. describes them as uniform in size; but, on the one hand, as passing into vessels still more minute (not equal to the half, third, or fourth part of the diameter of a blood-corpuscle); and, on the other, into the ultimate lymphatic vessels, which again communicate by innumerable minute passages with the venous system. In the opinion of this physiologist, this scheme of the circulation, far from abrogating, completes the scheme of Harvey and his successors. On the one hand, it admits of a general circulation of the kind described by Harvey, which is permanent and complete in the circle which it describes; on the other, it asserts an extension of this by an infinite number of partial or functional circulations, isolated from each other, but connected by means of the general circulation, and in their united capacity very much exceeding the latter. These partial circulations are special and heterogeneous in their function and distribution, and are only periodically active; the only exception to this being in the lung, where the special may be considered as subserving a mechanico-chemical function; and, being properly a function or complement of the general circulation, is, like it, permanent and complete.

Dr. Dowler* brings out some singular and interesting results in his researches on this subject. He shows, by a number of experiments performed on the dead human subject, that the capillary sys-

* N. O. Med. & Surg. Journ., Jan. 1849.

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tem possesses an independent circulatory force. Blood flowed freely from the arms of persons who had just died of yellow fever. In some cases, when a ligature was applied, it jetted up and formed an arch, as in ordinary venesection. Along with the blood, in one experiment, he observed soft flocculent masses escaping from the orifice in the jugular vein, which, on examination, proved to be chyle. The result of his researches is, that, after life has become extinct, "several important sub-lives, in tissues, and several functions may survive for a considerable period." These are manifested in the calorific process, in muscular contractility, in capillary action, and in the chylous circulation.

7. *Post-mortem Heat in Cholera Subjects.*—In the conclusion of the paper above referred to, Dr. Dowler states the results of his observations made on the body of an individual who had just perished of cholera. He found that the heat of the cadaver fluctuated, rising, falling, and rising again, as he had remarked on a former occasion, in the victims of yellow fever. About an hour and a half after death the body reached its maximum temperature, 109°. The readings of the thermometer, introduced into the rectum, were, at intervals of five minutes, 108°, 106½°, 106⅓°, 108°, 108½°, 109°. "On ligating the arm," says Dr. D., "and opening a vein in this subject, the stream arose at least six inches perpendicularly."

8. *Nature of the Gastric Juice.*—Lehmann* has recently entered anew upon the examination of this subject; and he finds that when he operates upon the stomachs of dogs, which are placed in a vacuum, in such a manner as to cause the vapours from the gastric juice to traverse a tube containing nitrate of silver in solution, there is no indication of free hydrochloric acid, until the concentration of the liquid has been carried so far as to permit the action of the lactic acid on the earthy chlorides. His observations, therefore, confirm the remark of Liebig, who denies the existence of free hydrochloric acid in the stomach, and contends that when obtained, it comes from the reaction of the lactic and phosphoric acids on the chlorides in that viscus. The experiments of Lehmann also confirm the results of Bernard and Barreswill, as to the nature of the acid in the gastric juice.

* Brit. and For. Med. Chir. Rev., Jan. 1849, from Archiv. der. Pharm.

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9. *Physiology of the Pancreas.*—The recent experiments of M. Bernard* have thrown much light on the process of digestion, and especially on the agency of the pancreas in that function. The physical properties of the pancreatic fluid had been ascertained; that it is a limpid, colourless, slightly ropy fluid, similar to the saliva, and somewhat heavier than water. It had also been shown that it is constantly alkaline, and that it is coagulable by heat and strong acids, owing to the presence of albumen; that when applied to farinaceous substances they were changed into sugar, which was absorbed; but that no action resulted from its contact with azotized aliments, in which, after a time, putrefaction was found to have taken place. It had been conjectured,† from finding an undue proportion of fat in the excrements of animals whose pancreatic duct was so obstructed as to prevent the discharge of the secretion, that this organ was the agent of digestion in the case of oleaginous substances. It was at this point that Bernard commenced his researches; and he has been successful in demonstrating what had been conjectured. He has proved by a series of experiments that oleaginous matters, when brought in contact with the pancreatic fluid, are quickly digested—formed into an emulsion which is absorbed into the circulation. This action takes place at all temperatures, and with all sorts of adipose substances, one part of the juice being sufficient for the immediate emulsion of ten parts of oil. Pure fat disappears rapidly in the pancreatic fluid, and if the union is assisted by heat, it is almost immediate; no vestige of the oil remains, except fine globules resembling those of milk. All adipose matters suffer the same transformation, one of the most solid of them, sheep's suet, being speedily dissolved. This action is easily shown to take place out of the body, and is peculiar to the pancreatic secretion, neither the saliva, the bile, the gastric juice, nor any other fluid of the animal economy being capable of it. It is not an example of saponification, for the fluid when rendered slightly acid still preserves its properties. It depends upon the presence of an organic matter, which is destroyed by heat or long keeping, after which, although the pancreatic juice still retains the power of converting fecula into sugar, it no longer possesses the property of forming emulsions with fatty matters. In this facility of change, this fluid

* Boston Med. and Surg. Journ., 1848, and Southern Med. and Surg. Journ., August 1848.

† Kirke's and Paget's Physiology (Am. edit.), p. 189.

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differs strikingly from the gastric juice, which remains for a long time unchanged.

From this it results, that the pancreas is an organ indispensable to the process of digestion, to that part, at least, which consists in the assimilation of fatty matters. The existence of milky chyle seems due to the pancreatic juice, as the true lacteals are never seen above the entrance of the pancreatic duct into the duodenum. It is not produced by the biliary secretion; for in the rabbit it is not found until after the fatty aliments have been subjected to the action of the pancreatic juice, although they had been previously mingled with the bile; and in the dog it has been observed when precautions were taken to prevent the entrance of bile into the intestine. On tying the two ducts of the pancreas in the latter animal, we have chyle resembling lymph, and the fatty substances swallowed remain unchanged. When a larger quantity of oily aliment is given than the pancreatic juice can dissolve, it is found in the excrements of the animal.

Another remarkable discovery of Bernard is, that the pancreatic juice and the bile, both alkaline fluids, form, when united, an acid mixture capable of dissolving nitrogenized substances in a manner precisely similar to the gastric juice. This is the intestinal juice, the most important of the digestive fluids, which M. B. found, in the duodenum of the human subject, below the orifice of the ductus communis cholidochus, and in animals below the orifice of the pancreatic duct. By means of this fluid, aliments which are not digested in the stomach are acted upon in the intestines. The power, therefore, of transforming starch into sugar is the least important property possessed by the pancreas, since many other fluids of the animal economy, saliva, serum, &c., also possess it; but to it has been assigned a peculiar and most important function, the nature of which M. Bernard has been fortunate enough to reveal. It may be exhibited by taking the pancreas of a recently killed animal, bruising and digesting it for a few minutes in a little tepid water, and placing this liquid in contact with fatty substances. It will be found more energetic if the animal be killed while the process of digestion is active; but it must be used fresh, as a change soon occurs in its constitution.

10. *Presence of Sugar in the Liver.*—MM. Bernard and Barreswill* have demonstrated the presence of a notable quantity of

* London Med. Gazette.

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sugar in the liver, both of man and animals. By fermentation, they obtained alcohol from this sugar, a sample of which M. Pelouze exhibited to the Academy. The sugar obtained crystallizes, and in this respect differs from that previously extracted from the liver, which was no more than a kind of molasses charged with salts. By repeated experiments, MM. Bernard and Barreswill have established the fact that the sugar, which exists in considerable proportion in the liver, is found in a normal state in no other organ; and the liver is thus chemically distinguished from all the other organs of the animal economy. They are satisfied that the liver contains uniformly the same large proportion of sugar independently of the food of the animal. Animals entirely deprived of food containing either sugar or starch, and kept for a long time on animal diet, still presented the usual quantity of sugar in their livers. And these physiologists hence conclude, that the existence of sugar in this organ is a physiological fact completely independent of the kind of food taken.

11. *Constituents of the Juices of Flesh.*—Liebig, in his late work on "*The Chemistry of Food and the Motion of the Juices of the Animal Body*,"* adduces many new proofs of the strictly chemical changes involved in the processes of the animal economy. The flesh of newly killed animals has long been known to have an acid reaction, which is due, in part, to the presence of lactic acid, identical with the acid of sour milk, and with that formed by the fermentation of starch, grape, and cane sugar, in contact with animal substances in a state of decomposition. The office of this acid, he maintains, is to support the respiratory process; and thus the functions performed by sugar, starch, and the other matters convertible into lactic acid, "ceases to be a hypothesis. These substances are converted in the blood into lactates, which are destroyed as fast as they are produced, and which only accumulate where the supply of oxygen is less, or where some other attraction is opposed to the agency of that element."

Kreatine, discovered by Chevreul, in 1835, is another most important element in the flesh of animals. Liebig first succeeded in obtaining it from the flesh of fowls, and he has ascertained that the flesh of wild animals and of birds yields it in greatest abundance. "The liquid obtained from these kinds of flesh is, when filtered,

* Lowrie, 1848.

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clear and limpid; that of the horse and of fish is always turbid; the taste of all is nearly the same, and the fluid from the flesh of the fox is, in this respect, not distinguishable from that derived from lean beef. The fluid from the flesh of the marten possesses a distinct musky smell, which becomes more decided when it is heated and evaporated." All the fluids obtained by the process of mincing and treating flesh with water, after a manner minutely described by the author, are acid, which is the more remarkable, since they must be mixed with blood, which is alkaline. The alkali contained in the blood is not sufficient to neutralize the free acid present in the fluid of the flesh; and the author believes that "in most animals, if we suppose the whole mass of blood in the vessels to be mixed with the whole fluid of the muscles, the mixture would retain, not a neutral or alkaline, but an acid reaction. In the hare, the amount of whose blood is proportionally small, this is certainly the case."

This acid may be precipitated by baryta, when the liquid becomes neutral, or even alkaline. It is then exposed to heat, and when evaporated to about one-twentieth of its original volume, "very soon, small, distinct, colorless needles appear on the surface, which increase on standing and on cooling, so that the walls of the vessel are gradually covered with them." These crystals are kreatine, the quantity of which in the flesh of different animals is very unequal. After the flesh of birds, and Liebig has found that of the martin to contain most, then that of the horse, the fox, the roe-deer, the red deer and hare, the ox, pig, calf, and, finally, that of fishes.

In the same animal, the amount of kreatine varies under different circumstances. The flesh of a fox, fed on flesh for a length of time in the anatomical rooms at Giessen, yielded less than the tenth part of the quantity of kreatine obtained from foxes killed in the chase; at the same time that the fat was very greatly increased, showing that with the augmentation of the latter there is a diminution of the former. The author obtained from 100 lbs. of the flesh of an old, lean horse, 555 grains of kreatine; 116 lean fowls, weighing about 50 pounds, yielded 1,110 grains; and 86 lbs. of beef, 463 grains. The heart contains a large proportion of kreatine, but in the brain, liver, and kidneys, it is not found.

"The crystals of kreatine are colorless, perfectly transparent, and of the highest lustre; they belong to the klinorhombic system, and form groups, the characters of which are exactly similar to that of sugar of lead. At 212°, the crystals become dull and opaque, with loss of water." This composition is $C_8H_{11}N_3O_6$, which contains the

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elements of urea ($C_2H_4N_2O_2$), oxide of methyle (C_2H_3O), aconitic acid (C_4HO_3), and ammonia (NH_3). They possess no basic characters, and do not destroy the acid reaction of the weakest acids; but by the action upon them of the strong mineral acids, they are converted into a true organic alkali, which Liebig calls *kreatinine*, and which is quite analogous to ammonia. The conversion of kreatine into kreatinine depends on the separation of 4 eqs. of water, which leaves its composition $C_8N_3H_7O_2$. The two have the identical composition of the compound discovered not long since, by Pettenkofer, in human urine. Urine, therefore, is the most economical source of kreatine and kreatinine. If dilute sulphuric acid be added to a saturated solution of kreatinine, a white saline mass is formed, the neutral *sulphate of kreatinine*. When a solution of kreatine is treated with hydrate of baryta, after long boiling there is obtained, by filtration, a transparent, colorless liquid, which contains a new organic base, to which the author gives the name *sarcosine*. "The crystals of sarcosine are colorless, perfectly transparent, and of considerable size. They are extremely soluble in water, very sparingly soluble in alcohol, and insoluble in ether. When dried at 212°, they retain their original aspect; at a somewhat higher temperature they melt, and sublime without residue." Their formula is $C_6NH_7O_4+HO$. With sulphuric acid they form a sulphate. "If, from the elements of crystallized kreatine, we subtract those of sarcosine, there remains a formula exactly identical with that of urea.

From 1 eq. kreatine	$=C_8N_3H_{11}O_6$
Deduct 1 eq. sarcosine	$=C_6N\ H_7\ O_4$
There remains 1 eq. urea	$=C_2N_2H_4\ O_2$."

When the liquid from flesh is treated according to the method of the author, after the crystals of kreatine are deposited, if alcohol be added, it deposits, when allowed to rest for some days, yellowish, acicular crystals, which consist chiefly of a new organic compound termed by Liebig *inosinic* acid. The formula of this acid is $C_{10}N_2H_7O_{11}$ in the anhydrous state. It has a strong acid reaction, and possesses an agreeable taste of the juice of meat; shows no disposition to crystallize, and forms salts with soda, potash, lime, baryta, lead, copper, silver, and other metals. "Considered as a hydrate it contains the elements of acetic acid, oxalic acid, and urea.

1 eq. anhydrous acetic acid	$C_4\quad H_3O_3$
2 eqs. anhydrous oxalic acid	$C_4\qquad O_6$
1 eq. urea	$C_2\ N_2H_4O_2$
1 eq. hydrated inosinic acid	$C_{10}N_2H_7O_{11}$."

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The juices of flesh contain inorganic constituents of great importance, among which the alkaline salts preponderate. Only alkaline phosphates and chlorides are found in the ash of the juice of meat, neither carbonates nor sulphates being present. The ashes of the juice of flesh, the cape of the ox, horse, fox, and roe-deer, contain pyrophosphates and tribasic phosphates, those of the juice of fowl contain pyrophosphates and metaphosphates. The whole amount of the alkalies present in animals is not sufficient entirely to neutralize the phosphoric acid; but their flesh retains, as has been seen, an acid reaction, which is owing to "the presence of acid alkalic lactate and acid alkalic phosphate, along with free lactic and phosphoric acids."

As the blood-vessels contain an alkaline fluid, while the fluid of the flesh is acid, and as the containing tissues are permeable by the fluids, we have the conditions favourable to the production of an electrical current; and the author conceives it probable that such a current takes a certain share in the vital processes. We cannot follow him further in these interesting details and speculations, but must turn for a moment to the second memoir, which treats of the *motion of the juices of the animal body.*

"In the course of this investigation" he remarks in the preface, "the more intimate study of the phenomena of endosmosis impressed on me the conviction, that in the organism of many classes of animals, causes of the motion of the juices were in operation far more powerful than that to which the name of endosmosis has been given." The movement of these fluids, apart from the mechanical force of the heart, depends, 1, "on the permeability of the walls of all vessels to these fluids; 2, on the pressure of the atmosphere; and 3, on the chemical attraction which the various fluids of the body exert on each other." But for the presence of water, which all parts of the animal system contain, motion in the fluids would be impossible. The solids lose more than half their weight by perfect desiccation. The power which they possess of taking up water extends to all fluids miscible with it, and is dependent on capillary attraction. The water not chemically combined seems to have the greatest share in the properties which belong to animal substances in the fresh state; and their capacity for being moistened by a liquid determines the rate of its filtration through them. Thus, 100 parts by weight, of dry ox bladder, take up in 24 hours, of pure water 268 volumes, of saturated solution of sea salt 133 volumes, of alcohol of 84 per cent. 38, and of oil of marrow only 17 volumes. Pure water is

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taken up by the animal membranes in larger quantity than any other liquid; they have a stronger affinity for it, and their permeability by it diminishes in proportion as it is mingled with other matters—in other words, loses its purity.

The blood-vessels contain a liquid which is transmitted through their walls with greater difficulty than any other fluid of the animal body. The fluids from the intestines are continually flowing into the blood; yet it is kept at all times in a nearly uniform state of concentration by a special apparatus, the kidneys. We may increase the rapidity of the current from the intestines into the blood-vessels by copious draughts of spring water, the effect of which is soon visible in the urinary secretion; but if, instead of water nearly destitute of salt, we drink sea water, the volume of blood is not increased; infiltration does not take place; the urinary secretion is not augmented; but catharsis is the result.

The author next proceeds to consider *the influence of evaporation on the motion of animal fluids.* One of the most important functions of the skin, he conceives, is its agency in the motion and distribution of the fluids of the body. These, in consequence of the cutaneous and pulmonary transpiration, acquire a motion towards the lungs and skin, which is accelerated by the circulation of the blood; but if we moisten the skin, the liquids are forced in by external pressure. "The changes of the vital process," he observes, "caused by the unequal distribution of fluid in the body in consequence of evaporation, are not seen in animals which live in water, in whom, therefore, the above-explained cause of motion in the normal state does not act. When a fish is held immersed in water, so that the head is out of the water, while the rest of the body is covered, it dies in a few minutes. It dies in exactly the same way when its head and gills are held in the water, and the body in air (Milne Edwards), in both cases without loss of weight. This fact shows, that even if the weight of the animal be kept unaltered by the absorption of water through the body kept in that medium, yet the distribution of the fluids in the body does not take place in the proportion necessary for the preservation of their vital functions. The fish dies. "Evaporation depends not upon the pressure, but on the temperature and hygrometric state of the atmosphere. The extent to which it goes on, as it varies continually, must be followed by a disturbance in the motion of the animal fluids. The bearing of these laws upon health will be at once perceived.

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12. *The Action of Medicines.*—In an elaborate series of experiments on the action of medicines injected into the blood-vessels of animals, Dr. Blake* has developed a number of interesting facts, some of which were referred to in the former report on the Medical Sciences. He found that the salts of iron rendered the heart's action slower, and facilitated the passage of the blood through the systemic capillaries. The salts of zinc, manganese, and copper produced similar effects. The salts of antimony, on the other hand, obstructed the capillary circulation in the lungs. The injection into the jugular vein of a dog of three grains of pure potass, dissolved in six drachms of water, was followed by expressions of pain, and slight increase in the rapidity of the heart's action, about fourteen seconds after the injection, or at the moment when the blood containing the solution would be circulating over it; the respiratory movements were quicker and rather labored; there were slight tremblings of the muscles, and spasm. In another experiment, the introduction of potass into the aorta produced great obstruction to the passage of the blood through the systemic capillaries; but when this was overcome and the alkali was carried to the heart, it immediately subdued that organ, and it ceased to pulsate. No obstruction to the blood in the pulmonary capillaries was observed; but it passed with great difficulty through the systemic capillaries. The presence of six grains of potass in the blood was sufficient suddenly to destroy the action of the heart and thus to produce death.

13. *Is the Purgative Action of Medicines an example of Endosmosis?*—M. Poiseuille found that when animal tissues were interposed between the serum of the blood and solutions of sulphate of soda and chloride of sodium, endosmose took place from the serum to the saline solution; and hence he infers, that the action of purgative salts upon the stomach and bowels of living beings is a physical one, an endosmose of the serum of the blood to the saline solution within the intestine. The direction of the current he found to be reversed by the muriate of morphia. When this salt was added to the saline solution, the endosmose was to the serum. Dr. George W. Jones† in a series of well-devised experiments has obtained results opposed to those of M. Poiseuille. Dr. Jones found, indeed, that endosmose took place from the serum to the solution, but he

* St. Louis Med. and Surg. Journ., June 1848, and Am. Journ. Med. Sci., Jan. 1848.
† Amer. Journ. Med. Sci., Oct. 1848.

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also proved that the result was the same when he used astringent instead of purgative salts. The current flowed from the serum to solutions of alum, acetate of lead, and sulphate of morphia, and he therefore concludes that, while there are phenomena in the living body which are explicable by endosmose, catharsis is not one of them.

14. *Effect of Ether and Chloroform on Animal Temperature.*—Some interesting facts have been announced to the Academy of Sciences by MM. Dumeril and Demaquay,* who instituted a series of experiments for the purpose of determining the effect of ether and chloroform upon animal temperature. They state that the temperature is peculiarly lowered in animals submitted to the influence of the vapor of those intoxicating agents, and that the effect of ether is most decided. The effect is constant, whether the vapor be introduced into the lungs or the rectum; and as great after a section of the pneumogastric nerves as where those nerves are in a state of integrity. These facts, they think, authorize the conclusion, that the vapour does not act primarily in the nature of an asphyxiating agent, but that the asphyxia induced is merely a secondary effect following its penetration into the system; that the phenomena of etherization set out from the disorder they induce in the central nervous system; that the asphyxia is but consecutive, and, if fatal, it is because etherization has lasted so long as to abolish the functions of the medulla oblongata, the last part of the nervous centres acted upon by the agent. In the experiments of these gentlemen they found that a loss of sensation, together with a depression of temperature, is brought on also by brandy; but that narcotics, save for a short period, raise the animal heat.

15. *Superfœtation and Mixed Birth.*—A case is recorded by Dr. Thomas B. Taylor,† in which a negress was delivered of twins, a mulatto and a negro child, the former of which bore marks, at birth, of being at least three weeks younger than the latter. The account given of herself by the woman was, that she conceived by her husband, a negro; that, in addition to the customary signs of pregnancy observed when she was in that situation before, she passed her next monthly period without the appearance of her menses; that, about

* London Lancet, 1848.

† N. O. Med. and Surg. Journ., Nov. 1848.

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three weeks after conception, and one week after her catamenia should have appeared, she had sexual intercourse once with a white man; that she slept every night with her husband, and had connexion with him the night before, but not the night after she had intercourse with the white man. From the reputation of the woman, Dr. T. has confidence in the truth of her statement, and is satisfied that the second impregnation occurred three weeks subsequent to the first.

A case analogous to this is reported by Dr. Reid, of Andover, Ohio*, as having occurred under his observation in one of the lower animals. A mare was bred to a jackass, and two or three weeks afterwards was served by a horse. She gave birth, at the proper period, to two foals, one of which was a mule, the other a colt of pure blood.

16. *Phrenology.*—Dr. Boisliniere† concludes, from an examination of the latest facts established in human and comparative anatomy, and the physiology and pathology of the brain, that it is impossible to admit, with the phrenologist, that the convolutions of this organ form so many centres of cerebral action, as they are but parts of an indivisible whole; or, with the cranioscopist, that the external surface of the skull exactly coincides with the several convolutions, since these are not symmetrically arranged on both hemispheres at the same time. Besides, he objects, the present system of phrenology leaves undetermined a very large portion of the cerebral surface in the human brain; viz.: the whole series of convolutions on the opposing median surfaces of the hemispheres, the convolutions of nearly the whole of the base of the cerebrum, and those of the fissure of Sylvius, which, there is every reason to suppose, participate as largely in intellection, the moral feelings, and animal propensities, as the external and superior portions of the respective lobes.

GENERAL PATHOLOGY AND THERAPEUTICS.

Cholera.—In the month of December, 1848, this pestilence appeared a second time on our shores. A ship from Havre arrived at New York on the 2d of the month, and one from the same port reached New Orleans on the 11th, with cases of the disease on board. Cholera was not prevailing at Havre at the time of the sail-

* British Am. Journ. Med. and Phys. Sci., Dec. 1848, p. 215.
† St. Louis Med. and Surg. Journal, August 1848.

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ing of the vessels; nor had it appeared there long after the ships had introduced it into this country. At New York, it was limited to the ship's passengers, and the persons who were brought immediately in contact with them. It did not become epidemic. In New Orleans, cases of cholera had occurred in the practice of at least one physician before the arrival of the ship, which bears the odium of having imported the disease. The winter in New York was severe; the cold weather, according to all the laws of malaria, ought to have prevented the pestilence from spreading. In New Orleans, the weather prevailing at the time the Swanton arrived, and which prevailed long before and long after her arrival, was of a character the most favourable to the propagation of a miasmatic disorder. The rains had been copious beyond all precedent. During the year nearly eleven feet of water had fallen.* In a single month, the month of June, the quantity of rain was 30.306 inches, more than the average annual fall for twenty years prior to the year 1845. The rains continued through the summer and autumn, and far into the winter. In the month of December the quantity that fell was 11.100 inches. The streets, from the time the first pavements were laid down in New Orleans, were probably never in so bad a condition as at the beginning of that month. "The continued rain, and the saturated state of the earth had rendered repairs useless or impracticable; the elements of putrefaction and fermentation accumulated fearfully in every direction, until the atmosphere was polluted with poisonous exhalations, in which a sickly and acid smell at times predominated, and which were pressed down in a concentrated state near the surface, by the dismal fogs which shrouded the river and the city in gloom."† The thermometer rose in the shade to 79°, 80°, and 84°. The walls and furniture of houses in this moist, heated atmosphere were covered with mould.

The day after the landing of the Swanton's passengers three of them were taken to the Charity Hospital, and died of cholera. A case, about the same time, was reported to have occurred in a labourer, at least a mile and a half away from the infected ship. After this, the number of cases increased rapidly. But several days before the Swanton reached New Orleans, Dr. Fenner had met with a disease which he is persuaded was unequivocally cholera. Bowel complaints had been prevalent in the city. From all the facts in the case, it therefore appears that the irruption of the epidemic on

* Report of Board of Health. New Orleans Journ. Med., March 1849. † Ibid.

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the arrival of the Swanton, was a mere coincidence, and cannot be laid to the charge of that vessel. The arrival of a ship at New York, crowded with cholera patients, did not propagate the disease among a healthy population, in a frosty atmosphere. In New Orleans, the first cases that attracted general attention, were brought by the Havre packet; but the epidemic was previously impending; cases had already occurred; others followed the cases from the ship in quick succession; they were heard of in all parts of the city; and under the favouring state of the weather the disease soon became general. In all this, we are not able to perceive anything like importation or propagation of the epidemic by contagion. Nor is the fact that it failed to spread, although boats were leaving the city every day with cholera cases on board, more in harmony with that hypothesis. A number of persons came with the plague upon them to Louisville, and died in the Marine Hospital; cases were transported to Cincinnati, Pittsburg, and all intermediate points on the river; and yet the disease was not communicated. The cause of cholera remains a mystery; but clearly, we think, the disease is not contagious. Respecting the nature of the affection, but little new light has been derived from its recent progress. We are still comparatively in the dark as to what the disease is, as well as why it is. It would be an unprofitable consumption of time to enter into an exposition of all the theories put forth on these subjects; and it does not come within the province of the committee to speak of the treatment of cholera. In regard to its prevalence in New Orleans, the following interesting facts have been observed:—

1st. The disease was almost always preceded by premonitory symptoms, in which stage, lasting from two to five days, it was easily managed.

2d. The large majority of the victims were unacclimated persons, immigrants recently arrived, citizens who had passed their summers abroad, and negroes who had been brought from other States. The Board of Health report, that no person born in the city, and who had permanently resided there, died, within their knowledge, of the epidemic.

3d. Some acclimated individuals died, but their death was ascribable, in perhaps every instance, to imprudence or neglect.

4th. The epidemic was materially influenced by atmospherical vicissitudes. It was aggravated when the days were cloudy, damp, and sultry; it declined when the weather was clear and cool, and the wind from the northwest.

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5th. During the prevalence of the epidemic, at least for several weeks, all the citizens were subjected somewhat to its morbific influence. A looseness of the bowels, not amounting to diarrhœa, but troublesome, and sometimes painful, was common. It was frequently attended with tenesmus, or bearing down of the rectum; and was singularly under the influence of the weather, aggravated by clouds and fogs, and improved by a serene atmosphere.

6th. In New Orleans, as elsewhere, few were rescued from the state of collapse—in which stage cholera bears so close a resemblance to congestive fever, that many physicians regarded it as that disease under a masked form.

Statistics of Cholera.—In Russia, from the period when epidemic cholera commenced up to the fifth of last July, about twenty months, 290,318 persons were attacked with the disease, of whom 116,668 died. In Berlin, from the 27th of July to the 11th of October, 1848, the number were as follows: attacks 2009; deaths 1262. At Hamburgh, of 2229 attacked, 1043 perished; at Smyrna, 3212 were attacked, and 2494 died. Up to the 7th of November last, 468 cases had been reported in Scotland, of which 243 were fatal. The ratio of mortality in all these places is not only very great, but surprisingly uniform. Of the first 37 cases that occurred at Staten Island, and on board the ship New York during her passage, according to the report of Dr. Whiting, all but ten had a fatal termination; of the 33 cases that occurred subsequently, only nine were fatal; but the whole number of deaths was 36 out of 70, equal to the ratio of the European cities. The whole number of deaths from cholera in New Orleans, during the first twenty-five days of its prevalence, after which it ceased to be regarded as an epidemic, was 1115, an average of about 44 a day. Of this number 503, or nearly one-half, took place at the Charity Hospital. The mortality, on the 20th of January, had swelled to 1400; of these, 596 were at the hospitals. It is impossible to say what ratio this mortality bears to the number of cases; but it is certain that it compares most favourably with the mortality of the epidemic in 1832, when it followed in the wake of yellow fever. In that year it broke out on the 28th of October, and, in the short space of twenty days, carried off 6000 of the population, or one in six of the inhabitants at the time in the city. The same ratio, says Dr. Fenner,* would demand, at the present time, 20,000 of the population. At Nashville, up to the 25th

* See Western Journ. of Med. and Surg., Feb. 1849.

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of February, fifty deaths had occurred from cholera; the number of cases is unknown. Dr. Buchanan* states that it was very large, but that the cases were generally of a mild character.

In comparing the dates of attack in different parts of Europe, in the former and present epidemic, some very striking analogies have been discovered. Thus, cholera appeared at Moscow in the beginning of October 1830; at the end of September 1847: at St. Petersburgh on the 25th of June, 1831; and in the beginning of June 1848. The first cases occurred in Berlin on the 31st of August, 1831; about the 12th of August, 1848: at Woronesch, about the end of September 1830; 5th of September, 1847: at Karkhoff, September 23d, 1830; August 23d, 1847.† In other parts of Europe, and thus far in our own country, the coincidence has failed.

The duration of the epidemic has varied greatly in different places. In India, in a moving body of men it has been about four weeks; the acme is reached between the 5th and 15th day, and the decline occupies from 14 to 20 days.‡ At St. Petersburgh it attained its acme at the fifth week, and then gradually declined; while in 1831 it lasted 90 days. In some towns in Kentucky and Tennessee, the former epidemic ran its course in a week, and in these places it was marked by great mortality.

Relations of Cholera to Geology.—The remark was made some years ago that, in the spread of epidemic cholera through the western States, during its former prevalence, it seemed to assume its highest malignancy in regions of country where the older limestone rock is the geological formation:§ Dr. C. T. Jackson|| has more recently stated, as the result of his observation, that the epidemic has never been destructive in granite regions. An apparent exception to the truth of the remark is presented by a locality in India.¶ The site of Bellary, upon which an English fort has long stood, is a granite rock, half a mile in diameter, and five hundred feet in height. In its neighbourhood are no marshes, no rivers, no dense and exuberant vegetation, which may afford to cholera a congenial soil; and yet, for thirty years, the pestilence has never been absent a single season from Bellary. The disease hangs about the fort, and rarely travels any distance from it; it has sorely afflicted the barracks on

* Western Journ. of Med. and Surg., April 1849.

† British and For. Med.-Chir. Rev., Jan. 1849. ‡ Ibid.

§ Western Journ. of Med. and Surg.

|| Boston Med. and Surg. Journ.

¶ Brit. and For. Med.-Chir. Rev., Jan. 1849.

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the rock, and the bazaars immediately adjoining, but has almost uniformly spared the native lines and the adjacent buildings, three miles away. The explanation of this prevalence is easily given. The hygienic conditions under which the men are placed, are precisely such as are best calculated to develop and perpetuate cholera. The barracks are crowded to excess. Close to them are two dirty bazaars, which have long been considered a public nuisance. A large tank, which becomes dry during the hot season, taints the air with its effluvia, and the emanations of a large body of men, in close barracks, and negligent of cleanliness, furnish assisting conditions in aid of the poison. When we take into account the climate of the country, it is not surprising that these causes are productive of cholera from one year to another. The heat, during the months of March, April, May, and part of June, is described as being insufferable.* The unclouded sun glares from a sky of brass upon the parched earth, and its fierce rays acquire additional force by being reflected from the granite rock; the thermometer rises, at midday, to 90°, and even 98° in the shade, and to 130° in the sun; and the heat is rendered more oppressive by the sultry stillness of the atmosphere. The winds, which occasionally interrupt this calm, burn as if they had passed over a furnace, and are more intolerable than the still atmosphere itself.

We will only further remark in regard to the geological relations of cholera, that the formations of those parts of Russia and Germany, where the pestilence has just raged with so much mortality, are analogous to those of Canada, New York, Ohio, Kentucky, and Tennessee, amid which the disease evinced its most concentrated malignity in 1832 and 1833. In all these countries, so widely separated from each other, the rocks are of a corresponding age, and belong to the Silurian system.

Cryptogamous Origin of Malarious and Epidemic Fevers.—In a work with this title, Prof. J. K. Mitchell has formally renounced the doctrine of miasma, and set forth the arguments which, in his view, favour the belief that fevers, as well as cholera, are excited by cryptogamous plants. His conclusions are thus stated: "My preference (for the fungous over the animalculæ hypothesis) is founded on the vast number, extraordinary variety, minuteness, diffusion, and climatic peculiarities of the fungi. The spores of these

* British and For. Med.-Chir. Rev., Jan. 1849.

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plants are not only numerous, minute, and indefinitely diffused, but they are so like to animal cells, as to have the power of penetrating into, and germinating upon, the most interior tissues of the human body. Introduced into the body through the stomach, or by the skin or lungs, cryptogamous poisons were shown to produce diseases of a febrile character, intermittent, remittent, and continued; which were most successfully treated by wine and bark. Many cutaneous diseases, such as *favus* and *mentagra*, are proved to be dependent upon cryptogamous vegetation; and even the disease of the mucous membrane, termed aphthæ, arises from the presence of the minute fungi. As microscopic investigations become more minute, we discover protophytes in diseases, where, until our own time, their existence was not even suspected, as in the discharges of some kind of dysentery, and in the *sarcina* of pyrosis. We are, therefore, entitled to believe that discovery will be, on this subject, progressive. The detection of the origin of the muscardine of the silkworm, and a great many analogous diseases of insects, fishes, and reptiles, and the demonstration of the cryptogamism of these maladies, their contagious character in one species of animals, their transfer to many other species, nay, even to vegetables themselves, all concur to render less improbable the agency of fungi in the causation of diseases of a febrile character. A curious citation was subsequently made of the fungiferous condition during epidemics and epizootics. These moulds,—red, white, yellow, gray, or even black—stained garments, utensils, and pavements, made the fogs fetid, and caused disgreeable odours and spots, even in the recesses of closets, and the interior of trunks and desks. These moulds existed, even when the hygrometric state did not give to the air any unusual moisture for their sustentation and propagation. Their germs seemed to have, as have epidemics, an inherent power of extension. The singular prevalence of malarious diseases in the autumn, is best explained by supposing them to be produced by the fungi, which grow most commonly at the same season. The season of greatest photophytic activity, is, in every country, the period of the greatest malarious disturbance. The sickly season is, in the rains in Africa, in the very dry season in Majorca and Sardinia, in the rainy season of the insular West Indies, and in the dry season of Demarara and Surinam. Marshes are a safe residence by day, whilst they are often highly dangerous by night. This point, so readily explained by reference to the acknowledged nocturnal growth and power of the fungi, is a complete stumbling block to the miasmatists." The cryptogamous theory,

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he also insists, well explains the obstruction to malaria by a grove, a wall, or a gauze curtain; accounts for the failure of winds to carry malarious diseases into the heart of a city, from the adjacent country; for the immunity of cooks and smiths from the sweating sickness; for the introduction of yellow fever into northern ports; for the domestication of different diseases in different regions, which have a similar climate; as the plague of Egypt, the yellow fever of the Antilles, and the cholera of India; for their occasional spread to other places, and their return to their original haunts; explains why malarious sickness is disproportionate to the character of the seasons; why it infests some countries and spares others; and, finally, why the earliest cases of an epidemic are generally the most fatal.

Morbid Anatomy of Cerebro-spinal Meningitis.—Dr. Ames* has given a very satisfactory history of a cerebro-spinal meningitis which was epidemic in the south of Alabama a year ago. Of eighty-five cases, the progress and termination of which had been observed by himself or his friends, the subjects in twenty-two were whites, and in sixty-three blacks. The average mortality, in the malignant form of the disease, was sixty per cent. The epidemic showed a decided preference for low, damp situations, two hundred and forty cases having occurred at the base of hills where ten occurred on their sides or summits. The dura mater was the seat of abnormal vascularity in two cases; in one case the arachnoid membrane was similarly affected; the pia mater showed the usual vascularity of meningeal inflammation in every case. The vessels lying across the convolutions exhibited evident marks of inflammation. The nervous substance of the brain displayed an infinite number of red vessels, sometimes filled with fluid, sometimes with coagulated blood. The gray and white matter, the medulla oblongata, and the cerebellum all partook of these morbid alterations to a greater or less extent in every case. In seven cases, softening of the membranes was found; and in nine cases, softening of the brain. Thickening of the membranes was shown in four cases; in ten cases effusion of lymph and pus took place on some part of the membranes covering the exterior surfaces of the brain, and into the arachnoid cavity in nine cases. A morbid effusion was found in the lateral ventricles in four cases, and in several, concrete fibrine was discovered occupying the internal

* N. O. Med. and Surg. Journ., Nov. 1848.

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carotids, the basilar artery, or the longitudinal sinus and veins leading to it. The spinal cord presented lesions similar to those exhibited by the brain. All the abdominal viscera were in comparatively a normal condition except the stomach and the ileum, the mucous membrane of which in every case examined was found reddened, thickened, and softened. The blood drawn during the life of the subjects coagulated rapidly; and, on analysis, showed a marked increase in the proportion of its fibrine; 3.64, in one case, in another 4.56, in a third 5.20, and in a fourth 6.40. The diagnostic symptoms were, cephalalgia in the back of the head, and the pain peculiar; tongue enlarged, indented, gummy, with pink edges; pain in the neck, and stiffness and soreness of the muscles; traction of the occiput downwards; muscular tremors; rigidity of the large extensors of the spine; delirium, coma, and injection of the conjunctiva.

Causes of Aphonia and Stammering.—In an able article on this subject, Professor Lee* relates the following curious case: A little girl, three years of age, was bitten on the cheek when twenty months old by a rabid cat, and though the wound speedily healed, hydrophobic symptoms came on five weeks from the occurrence of the accident, and continued at longer or shorter intervals for five days. Gradually the spasms left her, but it was soon discovered that she had lost the power of speech. She now makes a few harsh sounds, like the deaf and dumb, but cannot articulate. This does not arise from the loss of hearing, for this faculty, as well as some others, appears to be quickened. She is constantly in motion, and little inclined to sleep. The most singular feature in her case is "a constant propensity to stand on her head and turn somersets. If left alone for a few minutes she is often found standing on her head in the rocking-chair, her hands resting on the arms of the chair, while her feet are thrown up against the back of the same." The top of her head is preternaturally hot; her pupils much of the time dilated. Cerebral derangement, consequent upon the disease which excited the spasms, is justly regarded by Professor Lee as the cause of these phenomena. Some organic change has resulted incompatible with the healthy exercise of her intellectual faculties, and bringing her to a state verging upon idiocy. Aphonia is induced by various other causes, as swelling of the fauces, paralysis of the nerves of the tongue and larynx, ulcerations and relaxation of the

* Buffalo Med. Journ. and Rev., Dec. 1848.

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chordæ vocales, apoplexy, &c., some of which are remediable; others are beyond the reach of art. Cauterization is the reliance, in loss of voice from inflammation, relaxation, or ulceration of the mucous membrane of the larynx; and nitrate of silver has recently acquired great reputation for its curative powers in all affections of the sort. It is due to Dr. Green, of New York, to say, that his writings have contributed largely to the currency of this method, which is justly regarded, the committee are of opinion, as an essential advancement in practical medicine. Without being, or pretending to be, the originator of the local treatment of diseases of the air-passages, to him assuredly belongs the credit of having first vigorously carried out the practice, as well as of demonstrating, not only its safety, but its great superiority over all other modes of treatment. The opposition which it encountered at first, is fast giving way before the accumulating proofs of its efficacy, to the mass of which the committee might contribute from their own experience if the occasion and the duty assigned them permitted it.

Human Poison.—Some curious cases are related by Dr. C. E. Lavender,* which, in his judgment, go to show that the exhalations from one human body, in a state of health, may be poisonous to another. P. K. was married, successively, to two healthy young women. His first wife soon became pregnant, began to decline, grew pale and hydropic, and finally miscarried. She conceived a second time, and was a second time delivered of a still-born child, by a premature birth, the labor being marked by the singular circumstance that no red blood followed the cutting of the cord or the removal of the placenta. Her feebleness increased; pulse 110, compressible, undulating; sighing, roaring, and uneasy feeling in the head; *light, and all white objects appeared to her yellow*, and the next day *red*. She finally died without any well-marked affection. His second wife, in like manner, began to decline soon after becoming pregnant, and died in about ten months, after suffering with a train of symptoms similar to those of the first. The optic illusions were strikingly similar. She could see but one-half of an object, and that appeared to her *green*, or *green* with *red spots;* and finally, all *light and white objects* appeared *red*. In both cases, without any apparent fixed disease, the emaciation went steadily on, and the symptoms, even to the singular affection of the retinæ, were nearly identical.

* New Orleans Med. and Surg. Journ., July, 1848.

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The husband is a man whose cutaneous exhalations, especially under excitement, are so offensive that all the civet of the apothecary would not sweeten him. Dr. L. refers to a third case, analogous in its symptoms, termination, and all the attending circumstances; and concludes that some morbific matter, secreted by the systems of their husbands, was the cause of the obscure malady in these females.

Puerperal Fever and Malaria.—Dr. E. R. Parks* has remarked that the type of puerperal fever is modified by the character of the diseases prevailing when it makes its appearance. In the midst of asthenic pneumonia, it assumes a typhoid type. During the summer and early part of the fall, when other diseases are prevalent, it puts on a more inflammatory aspect. He regards malaria as both a predisposing and an exciting cause of the affection; and his experience is, that few puerperal women who are under the malarial influence escape childbed fever.

Rheumatic Affections of the Stomach.—Dr. R. R. Stone† refers to affections of this character as having been common, during the past year, in some parts of Illinois, and as having by their resemblance to organic diseases of the stomach given practitioners no little perplexity. An illustrative case is related at length, in which the patient, after labouring under the complaint for three years, and having been subjected to treatment for dyspepsia, organic disease, amenorrhœa, and other affections, was at length relieved of all her symptoms, by wine of colchicum and bitter tonics. Dr. Stone was led to a correct diagnosis of her malady by having observed that she appeared to be worse every cold and damp day.

Pathology of Typhoid Fever.—Professor Flint‡ details the particulars of a case of typhoid fever which came under his observation in November last, and in which he had an opportunity of making a post-mortem dissection. It presented in an unusually prominent degree active delirium, which persisted obstinately through the whole career of the disease. "The intestinal lesions," remarks Prof. F., "furnished a fine exemplification of those which are regarded by Louis, and others, as constituting the 'anatomical characteristic' of typhoid fever, as distinguished from typhus." The spleen was not

* North-Western Med. and Surg. Journ., January 1849. † Ibid.
‡ Buffalo Med. Journ. and Rev., Jan. 1849.

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softened, which is an exception to the general rule in this affection. The stomach presented punctated redness, or ecchymosis; the mucous coat was softened; several ulcerations were detected; but this condition of the organ is to be regarded as an accidental element of the case. "The chief point of interest relates to the absence of evidences of inflammation in the encephalic structures, considered in connection with the cerebral symptoms during life."

Epidemic Dysentery.—In an interesting article on epidemic dysentery, Dr. Casselberry* revives a practice in this formidable disease which merits more consideration, there is reason to believe, than it has received from the profession—the use of saline and cooling remedies. Instead of an opiate, he gives bicarbonate of soda, tartaric acid, and Rochelle salts, to allay that insupportable anguish which attends the disease. When the thirst is urgent, and the gastric and intestinal irritation very great, he prescribes the effervescing draught—Bicarb. soda gr. xv; Rochelle salts, ʒj; tart. acid, gr. xii—every half hour, until free alvine evacuations are obtained. The action of the draught he has found most benign, allaying febrile symptoms, and at the same time relieving the sanguineous engorgement of the mucous membrane of the great bowels, by serous exhalation. By this treatment alone, in conjunction with opiate injections, he says, he has seen many cases cured. He believes that in epidemic dysentery the mucous membrane of the large bowels is more seriously involved than it is in sporadic cases of the disease; but on one point he cannot be mistaken, and that is, that the treatment proposed is infinitely the most efficient mode that he has witnessed in the malady.

Bronchitis alternating with Dysentery.—Dr. D. W. Yandell† relates the case of a child attacked with bronchitis, in whom symptoms of dysentery appeared on the declension of the pulmonary complaint. The dysentery yielded to appropriate treatment, and the symptoms of bronchitis returned. These again gave way to calomel, ipecacuanha, tartarized antimony and opiates; but they had scarcely begun to yield, before the dysenteric symptoms were re-developed with greater intensity than before; and when they were, in turn, subdued, bronchitis was set up a fourth time, persisted for forty-eight hours, and then finally subsided. There was nothing in

* Western Lancet, Sept. 1848.

† Western Journ. of Med. and Surg., Dec. 1848.

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the nature of the treatment to induce symptoms of dysentery, and the case seems to have been a libration of disease between the mucous membrane of the lungs and bowels.

Periodical Asthma.—Dr. John Dawson* relates several interesting cases of asthma of a periodical character, in which he resorted, but with no satisfactory success, to the use of quinine. In one, the disease recurred, in a woman 51 years of age, annually, about the same season of the year, and generally at the approach of a heavy shower of rain, attended with thunder and lightning. The passage of the *cirrus*, *cumulus*, or *stratus* variety of clouds across the sky excited no uneasiness; but no sooner did the *nimbus*, or rain-cloud appear, than she was seized with stricture of the chest, and great difficulty of breathing. The paroxysm, left to itself, lasted from three to twelve hours, and left the system in a debilitated condition. In one of these she was visited by Dr. D., who prescribed quinine with mitigation of the symptoms. The patient was advised to resort to the remedy, next year, in anticipation of the attack; but, although she followed the advice, the paroxysm came on in May, during a thunder-storm. She was relieved of the distressing symptoms by quinine, but not as promptly as in the former attack.—The subject of the next case was a man 60 years of age, who had suffered for twenty-four years of his life with periodical attacks of asthma, recurring annually in the month of May or June. After the incursion in the spring, he enjoyed but little comfort till the weather became clear and warm. He tried quinine at the suggestion of Dr. D., but was not sensible of any decided benefit from its use.—In a third case, that of a girl 11 years old, the paroxysms were monthly, and quinine administered in the intervals was followed by a cure. Dr. Dawson was induced to make trial of the remedy in these cases, from the success which had attended it in the hands of Dr. Hossan, U. S. A., and Dr. John A. English, of Alabama, who had employed it in cases of asthma with entire success. It would seem to possess some control over recent cases, but, as might have been anticipated, to be wholly inefficient where the disease has been of long standing.

Pathology of Dysmenorrhœa.—Professor Parker† has treated a number of cases of dysmenorrhœa within the past year, upon the

* Western Journ. of Med. and Surg., April 1848.

† Annalist, N. Y., 1848.

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theory that the difficulty lies in the narrowing of the os uteri, and perfect success has attended the practice. He relieves the stricture by introducing a bougie of sufficient size, precisely as he would remove ordinary strictures from the urethra. From much observation, he is satisfied that many, if not most, cases of dysmenorrhœa depend upon this mechanical obstruction, and that the mechanical treatment proposed will save numbers of the sex from years of intense suffering, and relieve them from the evil of sterility.

Sudden Development of Tumours.—Dr. John A. Cotton* gives the particulars of a case in which anomalous tumours were rapidly developed on the body of a child, and, after continuing for about six weeks, disappeared as suddenly as they had been formed. He saw the child, aged 30 months, on the 14th of September, 1847, with a tumour on the back of the thorax as large as a goose-egg divided lengthwise, which its mother had remarked for the first time that morning. The child appeared to be in good health, and experienced no inconvenience from the tumour, which was resisting to the feel, and looked like a common wen. Next day he found a second tumour, about half the size of the first, and immediately below it, oval, subcutaneous, movable, and painless. On the day following, he saw no difference in the two tumours which had made their appearance so suddenly, but now found the body and limbs of the child thickly studded with similar tumours, varying in size from a few lines to an inch, and an inch and a half in diameter. No others appeared after this time. They remained without any visible alteration in size or appearance until about the 1st of November, when, without any treatment, they were found to have subsided.

Trismus Nascentium.—Dr. J. Marion Sims, as the result of many observations made upon the subjects of this disease, considers himself justified in laying down the following propositions: "That trismus nascentium is a disease of centric origin, depending upon a mechanical pressure exerted on the medulla oblongata and its nerves; that this pressure is the result, most generally, of an inward displacement of the occipital bone, often very perceptible, but sometimes so slight as to be detected with difficulty;" that this displacement, physiological at first, becomes pathological when it persists for any length of time after birth, capable of producing the disease in question, the

* Western Journ. Med. and Surg., March 1849.

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symptoms of which are at once relieved by rectifying this condition of the cranial bones and thereby removing the pressure from the base of the brain.* In twelve cases, reported by him, relief followed the restoration of the occiput to its proper place.†

Vital Statistics of Philadelphia.—The gratifying result is shown in an elaborate paper on this subject by Dr. Emerson, that, notwithstanding the ravages made by two visitations of malignant cholera, the average mortality in Philadelphia from 1830 to 1840, 1 in 43, was considerably lower than for the preceding decennial period, when it was 1 death in 38.85 of the general population.‡ The proportional mortality of the blacks, though still great, has diminished in more than an equal degree. The general average from 1830 to 1840 was 1 in 31; whereas, in the preceding two years it was 1 in 21, or double the rate of mortality of the whites. In the years 1821 to 1826 inclusive, it was 1 to every 19.8, and during three years of the period, 1 in 15, 1 in 16, and 1 in 17. These statistics show a great improvement in the condition of the coloured people of Philadelphia; but the difference in mortality between them and their white neighbours, 1 in 31, to 1 in 43, is such as cannot fail to arrest attention. The same writer brings forward many statistics to prove that the prevalence of severe disease, or whatever else exerts a depressing effect upon a community, will be indicated by a conspicuous reduction in the proportion of male children born and the reverse.§

Causes of Mortality in the Valley of the Mississippi.—Dr. Cartwright‖ refers the mortality of the States west of the mountains to three principal causes. 1st. Malaria, and the too common practice of treating malarious or bilious affections, congestive fever, pneumonia, &c., as the diseases of hyperborean Europe are treated. 2dly. The large amount of adulterated, stale, and worthless medicine brought into those States and used by physicians. 3dly. The immense consumption of nostrums and patent medicines of all kinds by the "western people in attempting to doctor themselves." The mortality of the Western States does not appear as conspicuously as it ought, "owing to the women in the Mississippi valley being twice

* Am. Journ. Med. Sci., July 1848.
† Ibid., Oct. 1848.
‡ Ibid., July 1848.
§ Ibid.
‖ Western Journ. Med. and Surg., March 1848.

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as *prolific*, or nearly so, as the women east of the Alleghany mountains. For every 1000 women east of the mountains, between the years of 15 and 50, there are only on an average about 1200 children, or persons under 15 years of age; while, for every 1000 women between 15 and 50 west of the mountains, the average number of children or persons under 15 years of age, is 2200. Owing to this greater fecundity of western women, if there were no emigration from the east, and the mortality in the west was the same, the west would double its population in nearly half the time of the east." But it does not do this, allowing for what it gains and the east loses by removals, and the deficiency is occasioned by the greater mortality of the valley of the Mississippi.

Salubrity of Louisiana.—In an elaborate paper on meteorology, Dr. Bennet Dowler* shows, from numerous authorities, that Louisiana during its colonial history was favourable to health, and even now affords, from its population, more examples of longevity than any other country. The parish of La Fourch, forming the littoral of the State (of which one-half is a salt-water prairie-marsh, and the other half is annually inundated by the Mississippi), would strike the observer as the valley of the shadow of death;" yet in this parish one in every 913 persons is over a hundred years old—"a proportion two hundred and fifty times greater than the average of the 86 departments of France."

Frost and Yellow Fever.—In the same paper Dr. D. makes some statements going to show that there is by no means the connection between frost and the subsidence of yellow fever, that has generally been supposed to exist. The epidemic of 1847 appeared in New Orleans early in July, and had become extinct by the middle of October; and yet frost was delayed seven weeks afterwards. Summer heat was continued far into autumn, but still the health of the city, crowded with unacclimated persons, continued to improve. Strangers hastened into houses, all the inmates of which had perished but a few weeks before, and escaped the infection.

Fever Statistics of New Orleans.—In seven years, from 1841 to 1847 inclusive, it appears, from a report made by Dr. Fenner,†

* New Orleans Med. and Surg. Journ., January 1848.
† Ibid., July 1848.

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that there were admitted into the Charity Hospital, New Orleans, 19,445 cases of fever, of which 10,274 were intermittent. This latter form of fever was never absent from the hospital, even when epidemic yellow fever was at its height. The poor day-labourers furnish far the greatest number of cases of every species of fever. People in good circumstances, who are not exposed or imprudent, according to the experience of Dr. F., suffer but little from fever in the great southern emporium. The mortality of yellow fever, amongst this class of the population, is comparatively small. In reference to the epidemic of 1847, he states* that the weather preceding and attending its irruption was for the most part cool, changeable, and remarkably wet, 97¾ inches of rain having fallen in the course of the year. A state of atmosphere more favourable to the development of cholera could not well be conceived; yet yellow fever was the product; and it was reserved for a similar state of the weather, at the winter solstice, two years later, to evolve the former pestilence. It was remarked that while negroes were not less liable than whites to an attack of yellow fever, they were much less likely to die of it. The number of attacks amongst them was very great, but the number of deaths was extremely small.

Typhus Fever—its Mortality in Canada in 1847.—Dr. Stratton† presents us with some statistics of the mortality of typhus fever among the emigrants to Canada in 1847, which, in a hygienic point of view, are of an instructive character. It appears from the Report of the Chief Emigrant Agent at Quebec, that, during that year, 98,106 emigrants arrived in Canada from the British Islands, of whom 3,452 died in the hospital at Grosse Isle, 1,041 in the Quebec hospitals, and 3,579 in the city of Montreal, making, with those who died on the passage, a total number of deaths of 13,365 up to the first of November; and, as far inland as Montreal, one emigrant in every seven had died; and, of those who passed on, many sickened and died at other points; so that, it was assumed, one out of every five persons who left Britain was dead by the end of the year. Of the great number of ships engaged in bringing over these people, only three or four carried surgeons, and hence most of the 5,293 who died on the voyage perished without medical aid. When emigration was less, the proportion of passage deaths

* New Orleans Med. and Surg. Journ., Sept. 1848.
† British Amer. Journ. Med. and Phys. Sci., April 1848.

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to passengers was one in 200. In 1847 it was one in 18. In some of the vessels one-third, and in others three-fifths, of the passengers died. The explanation of this frightful mortality is found in the following facts. The ships were crowded to excess. The *Lord Ashburton* sailed from Liverpool with 470 passengers, of whom 64 died on the passage, and 120 before they reached Montreal. In some ships, from obstacles thrown in their way with regard to cooking, and in others from laziness or indifference, the passengers often did not cook their provisions. The supply, moreover, was wretchedly inadequate. In many cases it was limited to a pound of bread stuffs, or oatmeal, to each adult a day, and this often in a mouldy and damaged state. Thousands of the emigrants who arrived in Canada had no other sustenance on the voyage.* Added to this cause of disease, was filth the most noisome on all these crowded vessels. The passengers, in obeying the calls of nature, invariably did so into the hold, if indeed they left their sleeping berths on such occasions. On visiting a vessel such as this in the morning, before the emigrants have come on deck, "I have seen," says Dr. Douglass,† "a stream of foul air issuing from the hatches as dense and palpable as is seen on a foggy day from a dung-heap or range of hot-beds." In some ships, the passengers would not suffer the captain or crew to come down among them, lest they should be compelled to wash themselves, and to go on deck for pure air. In others, again, the officers resorted to the cruel extremity of *smoking* them out, and so forcing them to go on deck. It cannot be doubted that, however well-intended this harsh measure might have been, there were among the diseased passengers many too feeble to leave their berths, or even to be carried above, whose sufferings must have been aggravated by it, if their lives were not destroyed. When all these things are considered, instead of wondering that the mortality among the emigrants was so great, one rather feels surprise that it was not greater. But Dr. Stratton shows that this frightful waste of human life is not necessary. He has indicated improvements in the mode of transporting emigrants, by which most of the present evils would be prevented. For the sake of humanity we trust that his wise and benevolent suggestions will be adopted.

In a well-written thesis on the subject of ship fever, submitted for the degree of M.D., at Geneva Medical College, by Miss Eliza-

* Dr. Douglass, British Am. Journ. Med. and Phys. Sci., March 1848.
† Ibid.

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beth Blackwell,* the following thoughts, bearing upon the hygiene of this subject, are happily expressed. "We have thus seen," she says, "that the ship fever epidemic presented nothing peculiar or mysterious in its history. As it sprang from the same causes, so it presented the same phenomena, as the ordinary typhus, which always exists, in a more or less degree, in the crowded alleys and dismal cellars of our large cities. When the laws of health are generally understood and practiced; when a social providence is extended over all ranks of the community, and the different nations of the earth are interlinked in true brotherhood—then we may hope to see these physical evils disappear, with all the moral evils which correspond to, and are constantly associated with them."

Bilious Fever.—Dr. Fort,† in a paper on bilious remitting fever, gives some facts illustrative of the hygienic effects of clearing a country. Speaking of Milledgeville, in Georgia, he remarks that this fever appeared there as suddenly as the face of nature had been changed by the hand of man, and that for eighteen years, during the summer and fall, it was a formidable epidemic. Forty years have elapsed since the settlement of that town, and the face of the surrounding country, in that time, has been completely changed. The rich soil has been washed away from the hills, and its deeply sanded bottoms have become dry. The sources of malaria have been dried up, and the mortality which in Milledgeville, at one time, from bilious fever, might have been five per cent. per annum, has diminished, until now the deaths from this cause do not amount annually to more than one in two thousand. Dr. F. is acquainted with localities in this region, where families have lived for half a century totally exempt from bilious fever, even in its mildest form. He has remarked, that "very shallow wells indicate a very sickly country," numerous exemplifications of which are afforded by the sea-coast of Georgia and the Carolinas. The soil of all this region, he remarks, is sandy, but underlaid by a stratum of alluvial clay which holds the water, and which being exposed in many places furnishes the ricelands of that extensive district, so noted for their insalubrity. Leaving the coast, in about thirty miles the sand-hills are seen to rise, the wells attain a greater depth, and the inhabitants have another and higher grade of health, but unfortunately the country is

* Buffalo Med. Journ., February 1849.

† Southern Med. and Surg. Journ., Nov. 1848.

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unproductive. Beyond this lies the rotten limestone region, at an elevation of two hundred feet above the tide, having sluggish streams and valleys subject to overflow, a fertile soil, but a sickly climate. The water of the wells and springs is offensive to the taste, and in some places has the smell of stale animal matter, probably, from the beds of marine organic remains over which it passes.

Dr. Fort lays down a number of rules, founded on his own observation and experience, for avoiding bilious fever. 1. The night air in infected regions is to be avoided as much as possible. If it be possible, avoid visiting infected places at night. 2. Residences should be fixed as far as practicable from the known sources of the disease. Every foot that one can retire, remarks Dr. F., is an advantage. The width of a street may be a matter of consequence. In the selection of his residence, he says, he was guided by his experience on this subject, and for twenty years, his family, averaging more than a dozen persons, with sickness every year in their neighbourhood, have escaped every form of malarious disease. Many persons have settled within a few miles of Milledgeville, on healthy places, and although they did business in the town they yet escaped the fever in the sickliest seasons by returning and passing the night at their homes in the country.

Alkaline Urine.—Dr. G. O. Rees* had an opportunity of testing the quality of the urine in a case in which the abdominal parietes and the anterior walls of the bladder were deficient, and in which the secretion might be examined as it dropped from the ureters. The urine reddened litmus paper when the test was applied near the ureters, but not after the fluid had passed over the surface of the bladder. On the contrary, reddened litmus paper was immediately turned blue, showing the presence in the urine of alkali in considerable excess. The litmus paper could thus be termed red or blue at will, accordingly as it was held in the urine dropping from the ureters, or was placed so as to receive the urine as it escaped from the patient, after it had been acted upon by the exposed mucous surface. The lower part of the exposed fundus was alkaline, while immediately below the openings of the ureters, the urine rendered the surface acid. The power of the mucous membrane of the bladder thus to render the urine alkaline is therefore manifest, and the fact is of importance as an element in our considerations when investigating

* Med. Gaz., April 1848.

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diseases connected with this condition of the urine. Cases with symptoms indicating, as is thought, the phosphatic diathesis, have caused practitioners much anxiety, connected, as it is supposed to be, with debility, or wasting of the nervous centres. "I feel sure," remarks Dr. Rees, "that a great number of such affections have their origin in nothing more than an increased alkaline discharge from the mucous surfaces. This has been sufficient to cause the excretion of alkaline urine in quantity; and, in consequence of its alkaline condition, the earthy phosphates become deposited." It is possible for the urine to have been secreted abnormally acid, and to have acquired the phosphatic character from subsequent chemical changes, induced by irritation of the mucous surface of the bladder, the ureters, or the uriniferous tubes.

The Existence of Uric Acid in Healthy Urine.—Dr. Bird,* from a large number of observations, infers that the quantity of solids conveyed out of the system by the kidneys, may amount, on an average, to from 600 to 700 grains in the course of twenty-four hours. Of this, 255 to 270 grains are urea. Uric acid is also a constituent of healthy urine, sometimes separately, but more frequently in urine with ammonia. The mode in which it exists, Dr. B. supposes is as follows: "Uric acid, at the moment of separation from the blood, comes in contact with the double phosphate of soda and ammonia, derived from the food, and forms urate of ammonia, evolving phosphoric acid, which thus produces the natural acid reaction of the urine. If the whole bulk of the urine be, to the urate of ammonia formed, not less than 2701 to 4, the secretion will, at the ordinary temperature of the air, remain clear; but if the bulk of fluid be less, an amorphous deposit of the urate will take place. On the other hand, if an excess of uric acid be separated by the kidneys, it will act on the phosphate of soda of the double salt, and hence, on cooling, the urine will deposit a crystalline sediment of uric acid sand, very probably mixed with amorphous urate of ammonia, the latter usually forming a layer above the crystals, which always sink to the bottom of the vessel."

"In a state of health," says M. Andral,† "urine which has not remained too long in the bladder, and is examined soon after voiding, is always acid." Temporarily, it may be rendered alkaline, by the

* Ed. Med. and Surg. Journ., 1848.

† Med. Gaz.

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use of alkalies, or an exclusive vegetable diet. Privation of food does not remove the acidity; but in convalescents, the use of a bitter diet causes the urine to assume for a time an alkaline character. Disease does not render it alkaline. In all the author's multiplied observations on this point, he never met with a case in which, from the influence of disease itself, the urine became alkaline. When the spinal marrow is diseased, and the urine becomes alkaline, it is not until after the mucous membrane of the bladder has been involved in disease; and it is not then an alteration of secretion, but a purely chemical alteration; the urine becoming decomposed and ammoniacal, from coming in contact with the morbid products of the bladder. The urine, therefore, is immutably acid, except under the circumstances indicated, as pus and the blood are immutably alkaline.

On the Changes which Organic Substances undergo on their passage into the Urine.—MM. Wöhler and Frerichs* have caused a series of substances of known composition and habitudes to pass through the organs of different animals, under circumstances favourable for ascertaining the results. They found that *salicylous acid*, which they expected to become hippuric acid, passed the kidneys unchanged. *Oil of bitter almonds* did not poison, but the urine was found to contain hippuric acid after its administration. *Amygdalin* was not poisonous, showing that there is no substance in the body which can act the part of emulsion. *Benzoic ether* was traced as hippuric acid in the urine. *Tannic acid* was converted into gallic and pyrogallic acids. *Urate of potassa* increased the quantity of urea fivefold, and a considerable quantity of oxalate of lime also appeared in the urine. Urea was not converted into carbonate of ammonia, as was anticipated. The urine continued acid, and the urea probably passed off as such. These authors found that arsenic acid was less poisonous than arsenious acid, and that the former was reduced to the latter in the bowels of the animal. They also found that arsenite of lime, lately discovered in many mineral waters, is poisonous in large doses. Pure phosphoric acid exerted no poisonous action whatever; whereas phosphorous acid caused death in every case in which it was administered.

Pathology of Diabetes.—For all practical purposes, in the pre-

* Quart. Journ. of Chem. Society, Jan. 1849, from Ann. der Chem. und Pharm. lxv.

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sent state of our knowledge, we may, in the opinion of Dr. Todd,* adopt with advantage the following view of the pathology of diabetes: "That it is primarily a disease of the mucous membrane of the stomach, whereby an abnormal diastase is formed, which readily converts into sugar such aliments as admit of that conversion; the mucous membrane probably likewise secretes sugar; the sugar thus formed passes into the blood, and is rapidly eliminated by the kidneys, causing, at the same time, the attraction to those organs of the elements of a large quantity of water."

Very much to the same point are some interesting remarks of Professor Flint in a late number of his Journal,† on the pathology and treatment of this affection. "The presence of sugar in the blood and various secretions other than the urine," he remarks, "render it inappropriate longer to rank diabetes among renal diseases. It is a disease affecting the assimilatory process, in consequence of which sugar ingested passes unchanged into the blood-vessels, and alimentary principles capable of being converted into sugar undergo that chemical change. The kidneys are involved only as one of the excretory outlets by which this useless saccharine material is eliminated from the system. The hyper-secretory action of the kidneys (which is probably due to the presence of sugar acting as an excitant), constitutes an important element of the disease. This will serve to explain, in part, the dryness of the surface, the costiveness, the thirst, etc. The loss of those alimentary principles which contain sugar, or are capable of conversion into sugar, for all purposes of healthy assimilation, will explain the debility, the wasting, and the great gravity of the disease. We have thus advanced a considerable way in our knowledge of this disease; but we are still at a distance from knowledge of the nature of the perversion which the processes of assimilation undergo, and of the ulterior morbid condition upon which this perversion depends. In other words, its true pathology, and, as a matter of course, its etiology, are still unknown. The knowledge, however, which has been acquired is not without its practical value. It prevents, in the first place, treatment based upon the idea of its being essentially a urinary disorder, and other false pathological views, and in this way saves the patient from measures which might prove not only useless, but injurious. This, although negative, is, nevertheless, not the least important of the advantages which attend improved knowledge of diseases gene-

* Prov. Med. and Surg. Journ., April 1848.

† Buffalo Med. Journ., July 1848.

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rally. But it leads to a positive advantage in teaching the propriety of withholding, in as far as practicable, aliment of a saccharine nature, and aliment capable of being readily converted into sugar. In this way the quantity of sugar in the urine is almost sure to be considerably diminished, and, as a consequence, the amount of urine is lessened. Although the measure is not palliative, it is vastly important, inasmuch as, in itself, it serves to prolong the life of the patient, and gives time for the employment of means by which, it may be hoped, a cure will be effected. Our rational course, in the present state of knowledge, is to endeavor to restore the proper action of all the functions, and especially to modify and improve the processes of assimilation." M. Miahle,* in a paper read at a late meeting of the Academy of Medicine, has the following theory of diabetes: namely, that it depends upon a want of sufficient alkalinity in the fluids of the body. That the transformation of amyloid substances into sugar is not peculiar to diabetic patients; it is not an accidental phenomenon, but a necessary part of the digestion and assimilation of food. That this is brought about by an animal *diastase* in the saliva which he has discovered. That amyloid substances must, in all animals, without exception, be converted into sugar under the influence of this diastase. "But," says the author, "what becomes of this sugar?" It must participate in nutrition, and, in order to do this, undergoes certain transformations; for, in the normal state, it is not detected in any of the secretions. Its passage through the kidneys is pathological, and depends upon a disturbance which has its origin in a want of alkalinity in the blood. The alkalies in the blood, M. Miahle contends, are the principal agents in the digestion and assimilation of saccharine and amyloid substances. The saccharine principle must undergo farther transformations to be assimilable. In the healthy subject, the alkalinity of the blood is sufficient for this decomposition; but if this be deficient, the transformation fails to take place; the sugar becomes a foreign body, and is cast off, not only by the kidneys, but by all secreting surfaces, and we have diabetes. "The cause of this affection may, therefore, be traced to a defective assimilation of the sugar, through a want of alkalinity in the animal economy." Human blood is naturally alkaline, but would eventually become acid, through the ingesta, but for the counterbalancing effects of especial secretions—the urine and the perspiration. These are always, when normal, acid; the saliva and tears as uniformly alkaline.

* London Lancet, Jan. 1849.

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Noma, resulting from a Physical Cause.—A case of cancrum oris is reported by Dr. J. F. Peebles,* in which, although calomel had been given, the cause is ascribed to pressure upon the left carotid by an enlarged gland. A little boy, 12 years of age, had intermittent fever, for which his mother gave him a dose of calomel, followed by castor oil. His bowels were freely moved by the medicine, and a few doses of quinine put an end to his complaint; but on the sixth day from the time the mercurial was given, he began to complain of his mouth, and it was observed that he was discharging bloody saliva of an extremely offensive odour. His mother placed him under the care of a botanic physician to be treated for mercurial salivation. Five days afterwards, he was seen by Dr. Peebles, who detected, at the left angle of the mouth, a circular spot on the cheek the size of a twenty-five cent piece, which was completely gangrenous. The skin over it was blackened, shriveled, and depressed; the teeth on the same side were loose, and the gums sloughing; but beyond the mesial line all was healthy and natural. From this it was clear that the mischief had not originated in ptyalism. In the absence of all constitutional symptoms, and while the appetite of the boy was good, the mortification continued steadily to advance, and on the thirteenth day Dr. P. "raised without force, with the forceps, the whole of the cheek, and, removing the black and shriveled mass, left exposed the cavity of the mouth. The teeth on the affected side, both above and below, are all gone, and the bones are denuded of periosteum." Even after such frightful progress of the local malady, the little sufferer called regularly for food, ate with good relish, and otherwise disclosed but slight constitutional disturbance. He lingered for more than a week, and then sank exhausted, the mortification having extended beyond the mesial line in one direction, and to the angle of the jaw in the other, carrying away the greater portion of both lips, half the nose, and exposing the malar bones. Twelve hours after death, a careful examination of the body was made, when, on either side and in front of the sheath containing the great blood-vessels of the neck, Dr. P. found tightly packed two oblong bodies, the size of the little finger, which extended from the angle of the jaw to the top of the sternum. They proved to be prolongations from the glands at the angle of the jaw, and were firmly pressed down upon the blood-vessels, in their morbid growth, having filled up the space allotted to the transmission of the blood. The parotid gland was also indurated and enlarged. "The portion of

* Boston Med. and Surg. Journ., Jan. 26th, 1848.

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the gland grasping the external carotid encroached upon its calibre for more than an inch of its way, constricting the vessel to half its ordinary size, and, it being whilst thus involved that they were given out, those branches which water the face and subjacent parts on the diseased side, of course, are alike compressed and encroached upon. Their calibre was not only diminished, but the healthy elasticity of the vessels was impaired by the contiguity of the hardened and unyielding gland. This state of things obviously greatly impeded the circulation; and as only those parts watered by the vessels encroached upon were involved in the mortification, the inference is fair that the gangrene of the face, in this case, was occasioned solely by the physical causes above named." In this opinion, we fully concur with Dr. Peebles, who, in answer to the objection that this condition of the glands might have resulted from the irritation of the diseased cheek, remarks, that the glands of the opposite side were similarly diseased, and, moreover, that the dissemination was tuberculous; showing that the intumescence was not of recent date. The different arrangement of the vessels on the right side accounts for the exemption of the right cheek and gums from the disease.

The Heart-Clot.—In many cases of sudden death after delivery in hemorrhagic labours, Prof. Meigs* very ingeniously argues, the cause is to be sought in the formation of cardio-morphous coagula at the instant of fainting. It is well known that the last portions of blood in an animal bled to death coagulate more rapidly than the first. In several instances in which Prof. M. suspected the existence of these coagula, from the symptoms present, his diagnosis was confirmed by an examination of the hearts of his patients after death. That the clots were formed during the life of the subjects, were *pre*thanasial and not *en*thanasial, is proved, in his opinion, by their whitish yellow colour. The prognosis, in such cases, is the most unfavourable. A practical lesson of great value is imparted by the circumstances under which such coagula are formed; the danger arising from the attempt of the woman to sit up after deliveries attended by hemorrhage. It was from the formation of such a clot, Prof. M. supposes, that the Princess Charlotte died so suddenly; and its existence, he thinks, accounts for the sudden illness of puerperal women after hemorrhagic losses, in which he has seen a number perish. "The time required," he remarks, "for extinguishing the life of the sufferer, is a variable time. I can imag-

* Med. Examiner, March 1849.

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ine that, in the case of the Princess Charlotte, a coagulum was formed which filled the heart so completely, as to put an end to its action fifteen minutes after the birth of the princess." A patient under his care "lived forty-eight hours after the occurrence of the accident, during which time she suffered the most inexpressible respiratory distress. She filled her pericardium with serum, while her peritoneal cavity became also the subject of a great effusion. Upon examining the heart twenty-four hours after her decease, one might feel surprised that her life could be so long protracted, since the auricle, tricuspid, and ventricle were completely tamponed with a clot, which was not an enthanasial clot, but consisted apparently of a firm, whitish yellow mass of fibrine, out of which every particle of hemato-globulin had been washed away, or expressed."

Origin of Moles.—In a paper on the origin of these fleshy masses formed occasionally in the uterus of the human female, Dr. Lipscomb* has endeavoured to show that their development is closely connected with protracted lactation. In a practice of eighteen years, he states, he has seen "quite a number of cases of mole, and a large majority of the number occurred in females who continued to nurse their children after the re-establishment of the catamenia." Among his medical friends, he has met with some practitioners whose observation is coincident with his own. Dr. L. relates several cases of *germen falsum* which favour his theory of their origin.

Cyanosis.—Dr. Vatlier† relates the history of a case of cyanosis, in which he had an opportunity of observing the abnormal appearances after the death of the patient. He first saw the child when nine months of age, and watched the progress of the case for four years, at which time it terminated in death. The thorax was very prominent over the region of the heart, which was in a state of hypertrophy, particularly the right side; this was enormously enlarged. The walls of all the cavities were much thickened; those of the right auricle and ventricle most so. The pulmonary artery was very small and contracted at its orifice. The aorta arose from ventricles, the septum of the ventricles being wanting at the valves of the aorta, thereby allowing a free communication between the ventricles and that vessel. The ductus arteriosus was slightly

* Western Journ. Med. and Surg., April 1849.
† Ohio Med. and Surg. Journ., Jan. 1849.

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pervious; the foramen ovale open and valvular. Upon these appearances, Dr. V. remarks: "It will be observed that this case presents several of the most important varieties of conformation: 1st. The contraction of the pulmonary artery, impeding the passage of the blood to the lungs. 2d. The malformation of the aorta, whereby a large quantity of the venous blood must necessarily pass into that vessel at every systole of the ventricles, and which, I believe, would to some extent assist in producing the discoloration of the surface, and especially the livid appearance of the mucous membranes. 3d. The pervious state of the ductus arteriosus; and 4th. The persistent opening of the foramen ovale, both adding to the same result." This case favours the views of Dr. Moreton Stillé and others, noticed in the last annual report on the Medical Sciences, namely, that, in cyanosis, the essential proximate cause is simply and exclusively venous congestion. Rokitansky, also, holds similar views respecting this morbid condition. He says: "We are of the opinion that cyanosis *always* depends, not upon the mixture of the two kinds of blood, but upon the impeded reflux of the venous blood into the heart, and a consequent habitual or intermittent engorgement of the venous and capillary system; that, in this respect, all the varieties of cyanosis, however different in the original or acquired abnormal conditions of the heart and lungs, coincide, and may be, without violence, classed together."*

A case is recorded by Dr. Leonard,† in which death occurred in the patient's seventh month, and which derives additional interest from the fact that five children of the same parents had previously died under similar circumstances. This child appeared healthy at birth, and the first indications of disease were exhibited at about the end of a week, when it had violent fits of crying, and presented on its face, neck, and upper extremities the peculiar appearances of cyanosis. Its bowels became constipated, and convulsions followed. About six weeks previous to its death, it was attacked with diarrhœa, the evacuations sometimes being bloody. The blue colour was now never absent, vomiting came on, the irritation of teething was added to the other sources of disease, and the little sufferer soon sank under their combined influence. The lungs were found healthy on the post-mortem dissection. The pericardium contained about two ounces and a half of serum; the endocardium was preternaturally red. The heart was much enlarged, and its foramen ovale open. Mesen-

* Handb. der Pathol. Anat. Med. Examiner, April 1849.

† Boston Med. and Surg. Journ., 1848.

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teric glands, tuberculous and melanotic. Colon, at its transverse arch, much inflamed, as also the small intestines. Rectum in a state of ulceration; its mucous membrane, for four or five inches, entirely destroyed; pus in some parts. Other organs healthy.

Entozoa in the Heart, and Blood-Vessels, and Eyes of Animals.—Dr. Blake* opened the heart of a dog, which had been the subject of a physiological experiment, and in the right auricle found a number of entozoa. The worms, twenty or thirty in number, appeared to be a species of ascaris, and were situated principally in the auricular appendage, forming an intricate mass. They were in length from four to six inches, and formed a body which more than filled the auricular appendage; and yet the animal did not appear to have suffered at all from the intrusion of these parasites, but seemed to be in good health. The manner in which these entozoa insinuate themselves into the cavities of animals has been satisfactorily explained by Steenstrup, Agassiz, and other naturalists, who have seen them making their way through the skin, the abdominal parietes, and over the peritoneum towards the liver; but it is curious that, in this case, they should have been able to effect a lodgment in a cavity washed out as the auricle of the heart is by the continual circulation of the blood.

Dr. Osborne† relates a case which, in some points, is more interesting than the foregoing. On examining the body of a dog that had died with symptoms of hydrophobia, he found, in the heart and large blood-vessels of the animal, great numbers of entozoa. In the heart he supposes there were a hundred lodged, round, white, tapering towards the tail, and from half an inch to four inches long.

Cases of hydatids in the anterior chamber of the eye, and in the subconjunctival cellular tissue, are reported by Mr. Edwin Cauton,‡ consulting surgeon to the Kent Ophthalmic Hospital. The subject of the latter was a child two years and seven months old, of strumous diathesis, but in good health. No inconvenience appeared to result to the child from the tumour, which continued steadily to increase. Mr. Cauton clipped it with a pair of scissors, and a small quantity of thin, yellowish fluid issued, together with a cysticercus. The entozoon was perfect, about the size of a garden pea, the head and neck of which could be detected by the microscope. Mr. C.

* St. Louis Med. and Surg. Journ., June 1848.
† Western Journ. Med. and Surg., Dec. 1847.
‡ London Lancet, October 1848.

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had an opportunity of watching the progress of the second case for several months previous to the removal of the hydatid. During the time, vision was gradually impaired; the central part of the cornea projected, and grew more opaque than the portion surrounding it; the boy lost flesh, and suffered continual pain in the eye. An operation was at length performed, by which a cysticercus was discharged in a perfect state. A few months subsequently, a second cysticercus was discharged from the same eye. This is the fifth case on record, in which this entozoon has been discovered in the anterior chamber of the human eye.

Action of the Sulphate of Quinine.—Few subjects of late have called forth more discussion than the modus operandi of the sulphate of quinine. One of the last articles we have seen on the subject is from the pen of Dr. Wm. A. Booth,* who, as the result of much observation, concludes that the power of the medicine depends on an *anti-congestive* property, the result of a *tonic* action upon the nervous system. Periodicity, the feature of disease which especially indicates its use, is always to be looked for in the miasmatic regions, and if discovered, to be met by quinine, whether inflammation be present or not. In remittent fever, Dr. B. considers its use generally objectionable, though he admits that he has seen cases of this type apparently arrested by quinine; and for this reason tries it when the attack is prolonged, or the remission decided.

On the other hand, Dr. J. Davy† contends that quinine is purely a febrifuge, and that, instead of being a tonic or stomachic, it generally induces anorexia, and a relaxed or macerated state of the skin, some tremulousness, and in many cases slight aphonia. He gives it in the formative, or in the first stage of continued, remittent, or yellow fever, and in such circumstances his experience is favourable to its efficacy. In order to obtain its full efficacy, it must be pushed to cinchonism, which, therefore, he regards as the test and criterion in practice of the full and sufficient use of the remedy. Of 165 cases of remittent fever thus treated in the hospital at Barbadoes, in the year 1847, he reports that only two proved fatal. He has remarked, with other practitioners, that relapses in intermittents have their determinate periods, the day from the last attack being generally some multiple of seven. Each patient can easily ascer-

* New Orleans Med. and Surg. Journ., July 1848.

† London Lancet, February 1849.

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tain the law in his case after a few relapses, and by taking quinine for a few days before and after the anticipated relapse, at length completely eradicate the disease.

Dr. Lewis Shanks* contends for the utility of quinine in inflammatory diseases, given in large doses, and is therefore a believer in its sedative virtues. He relates cases in which he has thus used it with success. In a case of puerperal peritonitis, he administered 70 grains of the article in 36 hours, and convalescence was speedily established; but it is only to patients possessing considerable vigour of constitution that he deems it safe to give quinine in such doses. If the system has been weakened by much previous disease, the sedative effects of an over dose may prove fatal, instances of which Dr. S. thinks he has seen. These views are borne out by the experiments of M. Briquet,† lately made public. When quinine was injected into the jugular vein of an animal, the hæmadynameter of M. Poiseuille indicated a reduction in the heart's action; and he has thus ascertained that it may be diminished in all degrees, from one-tenth to complete annihilation, according to the doses injected, thirty grains being sufficient to cause immediate death. He therefore concludes that quinine exercises a directly debilitating influence upon the action of the heart, and infers from its physiological effects that it ought to be useful in the pyrexiæ, in rheumatism, gout, erysipelas, and other diseases accompanied by high action.

On the other hand, Dr. Mendenhall,‡ by all the experiments he has made, as well as by the testimony he has read respecting the action of the remedy, is "brought irresistibly to the conclusion, that although quinine has powers peculiar to itself, and which cannot be fully explained, yet that one of its obvious effects is an increase of the vital properties of the system, as a primary effect, and that it is entitled to the appellation of a stimulant."

A case strikingly illustrative of the therapeutic action of large doses of quinine has just been recorded by Dr. D. W. Brickell,§ of the Charity Hospital, N. O. Traumatic tetanus was induced in a young German by a wound in his foot from a nail. Among the remedies used for the relief of his distressing symptoms, was chloroform, administered internally in doses of a hundred drops, and although sleep was secured, the spasms persisted, and he was evidently growing worse under the treatment. On the sixth day of

* N. O. Med. and Surg. Journ., July 1848.
† Prov. Med. and Surg. Journ.
‡ Western Lancet, Sept. 1848.
§ N. O. Med. and Surg. Journ., Jan. 1849.

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his disease, Dr. B. gave him 30 grains of quinine in 60 drops of laudanum, at 10 in the morning. In the afternoon, he was much better. The quinine and anodyne were repeated before bedtime, and next morning his condition was still further improved. The day following, the same dose was repeated three times, under the influence of which the patient expressed himself as feeling better every hour; he slept well, complained of no pain, his spasms were scarcely perceptible, and no distressing indications of cinchonism were manifest. The quinine was continued daily in similar doses, and in a week after he commenced its use he was discharged well.

The interest of this case is heightened by the fact that chloroform did not appear to exhibit in it the curative virtues which it has shown in many other cases of this unmanageable disease. It is not certain that it would not have triumphed eventually, if persevering trials had been made of it; but it is certain that it failed to afford the relief which quickly ensued upon the use of quinine.

Dr. Brickell, in the November number of the same journal, relates the history of ten cases of intermittent fever treated by large doses of quinine at the Charity Hospital. His practice was to give 30 grains at a dose; half the quantity was repeated next day; and this rarely failed to arrest the complaint, without the induction of an unpleasant symptom in a single case.

Action of Calomel on the Liver.—From some experiments on calomel stools some years since, Dr. Golding Bird* concluded that they contained but little bile, and that the green colour depended upon an altered condition of the colouring matter of the blood. M. Michea† has recently investigated this subject with care, and the results of his examination are thus stated: 1. "Feces passed by a healthy individual, no drug having been administered. In six specimens, no bile was found. 2. Green stools rendered by persons suffering from gastro-intestinal irritation, no drug having been administered. The presence of bile was indicated in one only of three cases examined. 3. Calomel stools. This drug was exhibited to eight individuals, and the alvine dejections presented a green colour in four. In these, the presence of bile was readily demonstrated. These stools showed also the presence of a large quantity of albumen, which the author supposes to be derived from the bile." Bile was not detected in the stools resulting from saline purgatives.

* Med. Gaz., Sept. 1845.

† Monthly Retrospect, Dec. 1848, from L'Union Médicale, Oct. 1848.

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From these experiments, it may be concluded that calomel stools contain an excess of bile, nitric acid revealing in them the existence of two principles of that secretion, biliverdin and albumen. M. Michea, prefers the nitric acid as a test for bile. Added to an animal liquid containing this secretion, a characteristic reaction ensues; the fluid becomes first green, then bluish violet, and finally assumes a red colour. These changes occur in a few seconds.

Digitalis in the Cachexiæ of Children.—Dr. Winder* sets forth some peculiar views respecting the pathology of the cachexiæ of children, upon which he informs us that he has based a novel and successful plan of treating these obstinate disorders. He holds that this pathological condition is one of "*torpor*, in conjunction with irritation;" that, "while there is a general sluggishness over the body, there is an activity in the blood-vessels, which requires to be checked." His remedy is digitalis; and whatever may be the fate of the theory upon which he was induced to adopt it, he is "certain of the fact that, under its use, the quick, inflammatory, irritable pulse assumes gradually a slow, equable character, the lymphatic torpor is overcome, the swelled abdomen subsides, and the child, from having been drowsy and feeble, becomes lively, and comparatively strong." He combines the tincture of digitalis with nitrate of potass and antimonial wine, or tincture of squills; and, in conjunction with these remedies, addresses mercurials to the liver, when there is evidence of disorder in that viscus. If it were necessary to record cases, he might, he adds, fill pages with their recital. By a gradual and steady influence, which he establishes by cautiously increased doses, he has often succeeded, in most unpromising cases, in producing the desired effects on the lymphatic and arterial systems. The indication is to depress the one and excite the other.

Pathological Effects from the use of Iodide of Potassium.—The following morbid phenomena, according to Dr. Flagg,† occasionally attend the use of iodide of potassium. 1. Tumefaction of the gums, an increased flow of saliva, and a saline taste in the mouth, subsequently giving place to that of iodine. 2. Pain in the cardiac portion of the stomach after large doses. 3. Serous diarrhœa, unattended by febrile action. 4. Excessive secretion of urine, sometimes

* British Am. Journ. Med. and Phys. Sci., April 1848.
† Charleston Med. Journ., May 1848.

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with pain in the kidneys. 5. Symptoms of severe coryza, and of bronchitis, with the exception of fever and muco-purulent expectoration. 6. Different forms of cutaneous disease, as acne, eczema, and purpura. 7. A condition of the eyes resembling catarrhal ophthalmia. 8. Augmentation of the secretive action of the mucous membranes, especially of those lining the genital organs. 9. Cerebral excitement, evinced by a mild intoxication, and sometimes cerebral congestion.

MEDICAL JURISPRUDENCE.

Of all the subjects pertaining to forensic medicine, that of poisons is the one which many circumstances combine to render the most prominent. It is the one which most deeply affects human life and happiness. The journals published within the year of our service contain much matter on the subject, and, by going back a little, it would be easy to collect the materials for an extended report. We shall be compelled to limit ourselves to the exhibition of a small part.

Mineral Acids.—Several instances of poisoning by the mineral acids are reported in foreign medical journals; but we have not been able to find that any new phenomena have been brought to light in their history. In one instance, a man lived 20 hours after swallowing half a pint of sulphuric acid; and a woman, after taking half an ounce of the same acid, survived forty hours. A more interesting case is that of a child killed with sulphuric acid, administered by the mother. Suspicions were not excited until after the child had been interred for a fortnight; but, on exhuming the body, and making a post-mortem examination and analysis, proof of poisoning was rendered clear, and the mother was convicted of wilful murder. An obscure case of poisoning by hydrochloric acid is mentioned in the *Annales d'Hygiène*, for Jan. 1848, which possesses interest on account of the chemical examination. On boiling the stomach, a liquid of an acid character was obtained, which gave a white precipitate with nitrate of silver, insoluble in water, and in nitric acid, even with the aid of heat, but soluble in ammonia. From this the examiners inferred that hydrochloric acid had been given; but the correctness of this opinion having very properly been called in question, experiments were instituted on the stomachs and bowels of other subjects, which gave the same results.

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Arsenic.—It has been ingeniously proposed so to combine the tasteless, colourless oxide of arsenic as to give it a striking colour when dissolved, and thus warn the intended victim of its presence. Dr. Cattell suggests a combination of arsenious acid, prussiate of potash, and sulphate of iron. Keeping the mixture dry, no discoloration will take place; but the moment a portion is dissolved, a deep blue colour appears. A similar result is attained by mixing the arsenic with bichromate of potash. By combining it with sulphate of zinc, a promptly emetic compound is formed. The same is effected by tartarized antimony. And by mixing the arsenious acid with naphthaline, a mass is formed which excites coughing.

Magnesia an Antidote for Arsenic.—The claims of the sesquioxide of iron to be regarded as an antidote to arsenic, having been powerfully assailed by Taylor and others, it is with pleasure that we receive testimony in favour of any new agent. Dr. Emory Bissel* has brought forward calcined magnesia in this connection. He relates a case in which a labourer swallowed nearly a scruple of arsenic. Two hours afterwards sulphate of zinc was administered to excite vomiting; but the poison was not evacuated, and at the end of three hours his symptoms were of the most alarming character. Magnesia was now given in drachm doses, and the relief which attended the first application of the remedy was signal. Each successive dose mitigated the symptoms, and in a short time he had fallen into a comfortable sleep, in which state Dr. B. found him next morning. The bowels had been twice moved during the night. No bad symptom followed, and in ten days he was able to resume his labour on a farm.

M. Cadet Gassicourt† relates two cases of arsenical poisoning in which calcined magnesia was administered with similar success. M. Bussy holds that the process of calcination may be carried too far; that highly calcined magnesia is useless in cases of poisoning by arsenic; but that, when properly prepared, it is a more reliable antidote for this poison than the hydrated sesquioxide of iron.

Poisoning by Tartar Emetic.—Dr. J. T. Gleaves,‡ of Tennessee, reports a case of poisoning which possesses several points of interest. First, the quantity taken without producing a fatal effect,

* Am. Journ. Med. Sci., July 1848.

† Journ. de Chimie Médicale, Mars 1848.

‡ West. Journ. Med. and Surg., Jan. 1848.

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a tablespoonful; and second, the effects of the article on the skin. No case, it is believed, is on record, in which recovery took place after so large a dose of this poison; and no writer has noticed pustulation as one of the symptoms excited by it. The subject of this case was a young man in good health. He took the tartar emetic at 3 o'clock, P. M., and, though he drank large draughts of water, and tickled his fauces, no vomiting had ensued in an hour and a half. In the next two hours he vomited three times, and about the same time his bowels began to be moved. The alvine discharges were watery and very profuse. He was found by Dr. G. with cold surface, pulseless wrists, speechless, and apparently insensible, the action of his heart feeble and intermitting. Under the use of laudanum, decoction of galls, sinapisms, and brandy toddy, reaction was established in seven hours; but he was then greatly distressed with thirst, a burning sensation in his fauces, stomach, and bowels, and vomitings, the matters discharged being tinged with blood. On the third day, his fauces, on examination, were found covered with pustules; the next day, the whole surface of his body presented a similar appearance, and the day following the pustules spread to the extremities. He gradually recovered. The case of an inebriate is mentioned in the Dublin Medical Press,* who took an ounce of *chloride of antimony*, and became soon insensible; but, with the use of the stomach pump and astringents, was rescued from the dangers of the poison.

Poisoning by Oxalic Acid.—Cases of poisoning by this acid are not numerous in our country; but, as they occasionally occur, and generally as the result of accident, every new instance possesses some share of interest. The following case, recorded by Dr. Clarke,† is interesting on many accounts. Mrs. W. gave her husband nearly an ounce of oxalic acid by mistake for Epsom salts. Dr. C. saw him in about eight minutes after he took the poison, in which time he had swallowed half an ounce of lamp oil, and was vomiting from the effects of it. Magnesia was given, and was followed soon after by copious draughts of chalk and water. After it was supposed he had taken enough of the antidotes to neutralize the poison, a dose of ipecacuanha was administered, which produced free vomiting. At this time his extremities were cold, countenance anxious, pulse 90

* March 8th, 1848.

† Boston Med. and Surg. Journ., Feb., 2d, 1848.

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and weak, and he complained of pain and oppression at his stomach, with continual efforts to vomit, and prostration. Warmth was directed to the extremities, mustard applied over the stomach and bowels, and morphia given, with mucilaginous drinks, every half hour, until the vomiting ceased. Six hours after taking the poison, he became quiet, after vomiting blood mixed with the secretions of the stomach. His pulse was 95; tongue and throat red and sore; complained of tenderness of the abdomen upon pressure; was very thirsty, had griping pains, and a singular sensation of numbness all over. Ice was given, and counter-irritation continued. The poison was taken at 4 in the morning, and he passed a comfortable night. For three days the character of the tongue, throat, and alvine dejections was but little changed. He then began to improve, and in eighteen days was able to return to his occupation, relieved of every symptom except slight indigestion. The action of the antidotes, in this case, was most satisfactory, and confirms the confidence reposed by the profession in their efficacy. The wife of the individual uses oxalic acid in bleaching straw bonnets, and by mistake a quantity of it got into the medicine box, where its resemblance to Epsom salts caused the accident, which, in all probability, would have proved fatal but for the promptness with which the antidotes were administered.

A case of poisoning by this acid, which also terminated favourably, is reported by Dr. Charles Bashaw, in the *Dublin Medical Press* for Oct. 1847. The dose was *one ounce*. In ten minutes, vomiting of a fluid of a dark bloody colour followed. No mention is made of the treatment; but in ten days the patient was convalescent. On the ninth day an eruption appeared over the body similar to the maculæ of typhus, but passed off as convalescence commenced.

Poisoning by Chloride of Zinc, and its Antidote.—Dr. Stratton* reports cases of poisoning with this preparation of zinc, which, as a deoxidizing and disinfecting agent, has come largely into use, and may be the cause of many accidents of the sort. It is, therefore, important that the profession should possess a reliable antidote; and this Dr. S. is satisfied he has discovered in the carbonate of potash, or carbonate of soda. The medicinal dose of chloride of zinc is from half a grain to two grains. One of Dr. Stratton's patients swallowed about seventeen grains. She vomited freely, and

* British and Am. Journ. Med. and Phys. Sci., Dec. 1848.

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felt indisposition and want of appetite for three weeks; but took nothing to counteract the poison. In the second case, about two hundred grains of the chloride were taken by a man aged 54. He instantly felt burning pain in the throat, burning and griping pain in the stomach, great nausea, and a sense of coldness. Vomiting came on in about two minutes, and when he was seen by Dr. S., twenty minutes after swallowing the poison, he was still making efforts to vomit; with twisting and burning pain in the stomach, cold sweating, cramps in the legs, pulse 45, small and weak, anxiety and alarm. A solution of brown, home-made soap was administered, at intervals between the vomiting, until he took from three to four pints; olive oil was given every hour, and a sinapism applied to the epigastrium, which had become tender on pressure. In a few hours his pulse rose, and next day, although he continued to vomit occasionally, and threw up at one time some solid substances, which were thought to be eroded shreds of the mucous coat of the stomach, his condition was promising. In ten days he was relieved. His recovery was more complete than that of the girl, though the dose taken was so much larger, and this, probably, was owing to the fact that an antidote was applied in his case, while in hers nothing was done to neutralize the poison. In both cases, it was remarked by the bystanders that the matters ejected from the stomach were destitute of odour.

With regard to the requisite quantity of the antidote, Dr. S. remarks, as soon as the chloride of zinc enters the stomach one of its first effects, in a poisonous dose, is, fortunately, an emetic one; but cases may occur in which vomiting will not have taken place before the arrival of the physician. Under such circumstances, the carbonate of soda or potash should be given at once, a drachm of the former and a drachm and a half of the latter for every drachm of the poison. In the absence of these, soap suds may be substituted, and, in fact, soap seems, on some accounts, preferable to the uncombined alkalies, as its oily part is useful either as an emetic, or to soothe the irritated or abraded mucous membrane. Castor oil or olive oil should follow, to carry off any of the chloride which may have passed out of the stomach.

Impregnation of Water by Lead.—Dr. Christison, after much laborious research, comes to the following conclusions on the use of lead for transmitting water.

"1. Lead pipe ought not to be used for this purpose, at least

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where the distance is considerable, without a careful examination of the water to be transmitted. 2. The risk of dangerous impregnation of lead is greatest in the instance of the purest water. 3. Water which tarnishes polished lead, when left upon it a few hours, cannot safely be transmitted through lead pipes without certain precautions. 4. Water containing less than about an 8000th of salts in solution cannot safely be conducted in lead pipes without certain precautions. 5. Even this proportion will prove insufficient to prevent corrosion, unless a considerable part of the saline matter consists of carbonates and sulphates, especially the former. 6. So large a proportion as a 4000th, probably even a considerably larger proportion, will be insufficient if the salts be, in a great measure, muriated. 7. In all cases, even though the composition of the water seems to bring it within the conditions of safety now stated, an attentive examination of the water should be made after it has been running a few days through the pipes, for it is not improbable that other circumstances besides those hitherto ascertained may regulate the preventive influence of neutral salts."

Professor Bartlett* suggests it as "a matter deserving immediate and most serious consideration, whether the great increase which has recently taken place in the amount of neuralgic affections, may not be, in no small degree, dependent upon the use of lead pipe for the transmission of water for domestic uses." Neuralgia and partial paralysis, he believes, much more frequently result from lead poisoning than does the acute disease colica pictonum.

Copper.—In a case of suspected poisoning, related in the *Annales d'Hygiène*,† the body of an idiot girl was exhumed, and copper found in the organs on examination, which the professional witnesses, MM. Chevallier and Lassaigne, decided had been swallowed by the individual. The reasons for this opinion were, that, although copper is found often in the animal tissues—is probably a normal constituent of the human body—nevertheless, its being detected in this case, not only in the liver, the spleen, the heart, the lungs, the kidneys, the muscles, and the stomach, but also in the intestines and their fecal contents, forbids the idea that its presence was either natural or accidental. A mere trace of this metal is found, ordinarily, in the blood of the human subject. M. Millon‡ has shown that while the quantity of copper is from 0·5 to 2·5, the quantity of lead

* Amer. Journ. Med. Sci., Oct. 1848. † April 1848.

‡ Lond. Med. Gaz., June 1848, from Comptes Rendus, 1848.

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is from 1 to 5 per cent.; the quantity of silica is from 1 to 3 per cent.; and the quantity of manganese from 10 to 24 per cent., in the calcined ash of human blood.

Attempt at Poisoning with Pounded Glass.—Dr. W. K. Bowling,* of Kentucky, reports the following case of an attempt to kill a child by giving it pulverized glass. A lady in her attentions to her child, about 9 months old, discovered on the nates some particles of glass. Alarmed at such an appearance, she sent for her family physician, who procured from the feces more than a teaspoonful of glass in small fragments. A dose of castor oil was administered, and the discharges from the bowels preserved and washed for the purpose of collecting the glass that might be evacuated. It amounted to 80 grains, and was of various sizes, from that of the finest sand to that of a grain of wheat. Not the slightest irritation appeared to have been produced by the foreign substance, the child exhibiting perfect health. This result was very different from the one expected by the ignorant negro nurse, by whom the glass was no doubt given in revenge to the parents of the child.

Antidote to Strychnia.—Dr. Pidduck† recommends camphor as an effectual antidote to the poison of strychnia. In the case of a weakly man, who took the fourth of a grain (instead of the sixteenth, which had been prescribed for neuralgic pains), the muscles were convulsed with tetanic spasms. Five grains of camphor were given, and almost immediately the spasms ceased.

Two actions were not long since brought against medical men, one in Massachusetts, the other in New York, of a character which, if they do not prove the progress of American medicine, must be admitted, at least, to illustrate a certain "march of mind." We presume they are unique; at all events, we think they are worthy of being recorded. The particulars of the first case are thus reported.

A Trial of a Physician for Assault and Battery.—Dr. J. B. Gale, of Salisbury Mills, Mass., was tried for an assault and battery upon Mrs. Delaware, upon the occasion of her confinement with her first child. The testimony of the lady herself was to the following effect: Dr. Gale, on the morning of the 5th of March, 1847, called

* Western Journ. Med. and Surg., Nov. 1848. † London Lancet.

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to see her, agreeably to her request, conveyed to him by her husband. Dr. G. was introduced into her room about 5 o'clock, and remained till the child was delivered, her mother and another woman being also present. "He had been in the room about fifteen minutes," she continues, "when he came to where I was lying upon the bed, and after remarking, 'sister, you are doing well—don't be scared,' he commenced making an assault upon me by placing his hands upon my person. I had labour pains occasionally; and at intervals of a quarter, and a half hour, he renewed his assaults by placing his hand upon my person. At these different times I told the doctor to let me alone, and to go away, but he would not. I also asked for my husband: but the doctor replied, 'Umph! you do not need your husband.' The doctor did not ask my consent to make an examination. I think he increased my pains at each examination he made." Several physicians having testified that the conduct of Dr. G. was not different from the usual practice on such occasions, the counsel for the government having made an address, Justice Currier, before whom the case was tried, briefly reviewed the evidence, and after remarking that there appeared to be no cause for the complaint, that Dr. G. in discharging his duty had committed no offence, ordered the suit to be dismissed.*

It would appear, that this worthy couple had been enlightened by certain books as to the impropriety of employing male obstetricians; and that the thought of punishing a man employed by themselves occurred to them sixteen months after he had rendered the services. For the purpose of showing their abhorrence of so gross an indelicacy, and, as far as possible, preventing its repetition, they instituted the action just related.

Legal Responsibility of the Physician to his Patients.—The other case was one involving the legal responsibility of discontinuing medical attendance. Dr. Peter Pratt, of New York, had been in attendance on a patient for some time, but finding him intractable and indisposed to follow his directions, abruptly ceased his visits. The patient alleged that, in consequence of the neglect, his health had been impaired, and accordingly brought suit against the doctor, laying his damages at $5,000. The charge of Judge Ulshoeffer was to the effect, that a physician once employed to attend a patient cannot, without due notice, withdraw himself; but by giving such

* Boston Med. and Surg. Journ.

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notice he is at liberty to retire, and the patient cannot maintain an action. When a patient neglects the prescriptions of his medical attendant, he has no legal redress should the physician leave him to his fate; and that, finally, if an injury results to the patient from the combined neglect of the physician and himself, in such case he cannot maintain an action. The jury gave the plaintiff a verdict of six cents damages.

Feigned Diseases.—M. Bouisson, of Montpellier,* proposed in 1847, to apply ether inhalation as a test in cases of feigned deafness, dumbness, stammering, and contraction of the back or limbs. He cites a case of feigned contraction and atrophy of the muscles of the throat, the character of which he readily detected by ether. The author alludes forcibly to the mischievous uses to which anæsthetics may be prostituted by unprincipled men, instances of which have already transpired. Two cases of rape committed on etherized females by a dentist, were noticed a year since, by the *Presse* newspaper, and have been generally copied into our medical journals.

Spontaneous Combustion.—The *Gazette Médicale*† refers to an alleged case of spontaneous combustion. On the 6th of January 1847, the body of a man was found on fire in bed. A dense smoke filled the room; the bedclothes and clothes of the deceased were almost entirely consumed; the bedstead was partly burnt; and some portions of animal charcoal, having evidently belonged to the articulations were found near the body. The man was 71 years of age, and was neither very fat nor given to drunkenness. Suspicions were excited that the son and daughter of the deceased had first murdered him, and then burnt the body in order to conceal all traces of the crime. The remains were disinterred and an examination made by M. Masson of all the facts; from which it was concluded that, "as it was impossible to attribute the phenomena to the action of the combustibles with which the body had been in contact, they must be ascribed to a cause inherent in the individual, put in action, perhaps, by the heat of the brick applied to the feet, but which must have found a fuel in the tissues which it destroyed; that, in a word, it must be classed among the cases of spontaneous combustion." In this opinion expressed by M. Masson, M. Orfila fully concurred, and the accused were accordingly acquitted.

* Gazette Médicale, Aout 1847.

† Ibid., Sept. 1847.

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MATERIA MEDICA.

Styllingia Sylvatica, a valuable Alterant. —Dr. Thomas Y. Simons* directs the attention of physicians to the medicinal properties of the styllingia sylvatica, of which he gave some account in the *American Medical Recorder* more than twenty years since. Dr. S. esteems it the best vegetable alterative known, and thinks it will probably supersede sarsaparilla, or come, at least, to be regarded as its most useful adjuvant. It may be given in the form of decoction, tincture, powder, or extract; the latter in five-grain doses, constituting a good substitute for blue pill in the case of persons who are susceptible of salivation. The part of the plant used is the root.

Camphor and Chloroform Mixture.—The profession have long desired a solvent for camphor, which would enable them to administer this valuable medicine in efficient doses. The desideratum has at length been attained by Messrs. T. and H. Smith, chemists of Edinburgh.† They have published a formula for exhibiting camphor in the largest doses, and in a state of perfect solution, thereby permitting an exact adaptation of the dose to the circumstances of each case. The formula is as follows: Three drachms of solid camphor are dissolved in one fluidrachm of chloroform. The solution is rapid and complete, and the bulk of the liquid is now increased from one to fully four fluidrachms. With the yolk of a fresh egg it may be formed into an elegant emulsion by the addition of water, without the separation of the ingredients. It may be given in any of the ordinary vehicles, such as water, without any material separation; it mixes readily with weak saline solutions, as common salt, phosphate of soda, muriate of morphia, sulphate of zinc, and carbonate of soda; and with ammonia, as well as with acid liquids, as a weak solution of acetic and muriatic acids, the mixture seems to become more intimate and stable. What the therapeutic value of this formula is, has not yet been tested, but there can scarcely be a doubt that it will be found to possess active and valuable properties. Opportunities for trying it in cholera are offering in various parts of our country, and in a little time we shall probably have reports touching its efficacy.

* Charleston Med. Journ., May 1848.

† Monthly Journ. and Retrospect of the Med. Sci., November 1848.

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A New Organic Base in Opium.—Dr. G. Merck* has described a new principle extracted from the residues of morphium which he calls *papaverine.* This is the sixth distinct base discovered in opium. Papaverine is very sparingly soluble in cold, more soluble in boiling alcohol, from which it again separates in a crystalline state on cooling; it is likewise very sparingly soluble in cold ether, and is deposited in crystals from a boiling ethereal solution on cooling. It is insoluble in water; forms salts with acids but slightly soluble in this liquid; has not been proved to possess medicinal virtues. Its formula is $C_{40}H_{21}NO_8$.

New Liquid Adhesive Plaster—Collodion.—In a letter read before the Boston Society for Medical Improvement, Mr. Maynard,† a student of medicine, claims the discovery of an adhesive substance, which possesses several advantages over the common adhesive plaster, and may be employed in many cases to which the latter is not applicable. It is prepared by dissolving gun cotton in sulphuric ether. Mr. M. had used the adhesive liquid, and had seen it applied by his preceptor, Dr. Whitney, in more than a hundred cases of surgery, some of them serious, and successfully in every case. The solution, placed over a wound, dries rapidly, and in a few seconds by the evaporation of the ether becomes solid and impermeable to water; a strap, glued by means of it to any part of the cutaneous surface, adhering with a tenacity truly surprising.

This substance has been very beneficially employed for a variety of purposes. Mr. Erasmus Wilson,‡ in a case of scrofulous ulceration of the skin, found it to possess the following important properties, namely: that of a mild stimulant; an efficient substitute for the natural scarf-skin; a mechanical compress; an adhesive glue. He has used it with eminent success in a number of cutaneous diseases. In chapped hands and fingers, from chronic lichen agrius, and in chapped nipples, it was more efficient in its protective and curative action than any remedy he had ever employed; in the latter affection seeming to work a charm upon the painful skin, and having this superiority over most other remedies, that it is in nowise injurious to the infant.

Dr. Crawford§ has found it to act admirably in superficial burns.

* Am. Journ. Pharmacy. Chem. Gaz., from Liebig's Annalen.

† Boston Med. and Surg. Journ., March 29th, 1848.

‡ London Lancet, January 1849.

§ British Am. Journ. Med. and Phys. Sci., August 1848.

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Brushed lightly over the burned surface, a glazing is quickly observed, and the painful sensation almost instantly subsides. It has also been proposed as a remedy in caries of the teeth and toothache.

It is proper to add, that the claim set up by Mr. Maynard, of having introduced the collodion to professional notice, is controverted by Mr. Samuel L. Bigelow,* also a student of medicine in Boston. It appears that these young gentlemen were taught the solubility of gun cotton in sulphuric ether by Dr. C. T. Jackson; that, in attempting to apply the solution as a varnish, its adhesive properties suggested to them the thought, about the same time, that it might be applied advantageously in surgery; and that, forthwith, they set about experiments which resulted in establishing its great superiority over the common adhesive plaster, and its utility in many circumstances under which the adhesive plaster is not available.

Since the discovery of collodion, another adhesive mixture has been proposed. Dr. Sanborn, of Andover, Mass.,† finds that gutta percha dissolved in chloroform, to the consistency of melted glue, and applied with a brush, answers an admirable purpose in many cases in which the ethereal solution of gun cotton has been recommended, and is at the same time a more economical preparation. It does not evaporate with the rapidity of collodion.

Before dismissing collodion, let us remark that it may be used as a coating for pills. Mr. Durden‡ says that aloetic and colocynth pills may be thus rendered tasteless, while their medicinal effect is not interfered with. The pills are to be placed on the point of a pin or needle, and dipped twice into the solution of gun cotton. The two dippings give them a perfect covering.

Sulphate of Phillyrena, a new Febrifuge.—Prof. Jachelli§ proposes the introduction into the materia medica of the phillyrena latifolia, as a febrifuge. The alkaline principle is extracted, combined to saturation with sulphuric acid, and administered in the apyrexia, in doses of from ten to fifteen grains. Its claims to be regarded as a febrifuge are not stated in the brief notice we have seen of the article.

* Boston Med. and Surg. Journ., March 22d, 1848.

† Boston Med. and Surg. Journ., Feb. 14, 1849.

‡ Pharmaceut. Journ.

§ American Journ. Pharm., from L'Abeille Médicale.

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Cod-Liver Oil.—Dr. M'Ruer* gives a condensed history of the introduction of cod-liver oil, into the materia medica, and adds some valuable remarks on its therapeutic powers, in a paper of which the following is a summary. This oil has been a popular remedy among the inhabitants of the sea-coasts of Northern Europe for many centuries. Among the fishermen of our own continent it has long been highly valued for its remedial virtues in rheumatism and its kindred affections. It seems first to have attracted the attention of medical men in 1771, about which time Dr. Percival used it successfully in cases of chronic rheumatism; and a few years subsequently it was employed extensively in hospital practice by Dr. Key and Dr. Bardsley. It was not, however, until 1822, that professional attention was particularly directed to it by the publication of any number of authentic cases in which it had been successfully used. In Hufeland's Journal, from 1822 to 1826, Dr. Schenks published a series of papers urging its claims as a remedy in many chronic disorders, which led to its general adoption in Germany, and ultimately in all the States of Europe and our own country. The conjecture first announced by Dr. Kopp, that the oil contains iodine, has been verified by analysis, although the precise quantity has not been determined, but is variously stated at one-half to one-twelfth of one per cent. The proximate elements of the oil bear some resemblance to those of bile, as it contains, in common with that fluid, oil, resin, and saline matter. In 1835, Dr. Brefield, in a monograph on the subject, announced that cod-liver oil might be regarded as a specific, both in acute and chronic rheumatism; and his favourable testimony has since been corroborated by a host of European practitioners, who agree that it merits, in addition, the first rank among anti-scrofulous remedies. Drs. Graves, Taufflied, Richerand, Marshall Hall, and others, extol its curative powers in scrofulous and cutaneous diseases, phthisis, chorea, spinal irritation, chlorosis, coxalgia, and tabes mesenterica.

Writers are not agreed as to the *modus operandi* of cod-liver oil. Dr. Bennett ascribes its efficacy to its iodine, the superiority of which over that obtained by chemical means is owing, he supposes, to its combination with animal matter. Dr. Pereira,† in an elaborate paper on this subject, expresses a disbelief in this opinion, for the reason, among others, that iodine is not always a constituent of cod-

* Boston Med. and Surg. Journ., March 21, 1849.

† Amer. Journ. Pharm., April 1849, from Journ. Pharm.

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liver oil. Dr. Ascherson, of Berlin, conceives that the oil contributes to the formation of the elementary cells of tissue, and thus aids the restorative process of the economy. Most writers, while they accord ingenuity to this hypothesis, differ from its author in attributing the curative power of the agent to its influence in improving the function of nutrition, thereby affording to the blood an energetic and rich plasma, and promoting the activity of the vital forces, and forwarding the absorption of morbid deposits. Dr. C. J. B. Williams believes that it pervades the structure, and penetrates even into imperfectly organized deposits, and, by softening and rendering them more permeable and supple, brings them more under the influence of the adjoining living parts, through the circulation; whereby their vitality and nutrition are improved, or, if incapable of improvement, are gradually dissolved and carried away. To these explanations, Dr. M'Ruer feels authorized, from having observed its effects in some peculiar diseases, to add another. He attributes the restorative powers of the oil to its direct admissibility into the circulation, without undergoing the process of digestion, or passing through the lacteal system, entering either by vital absorption or by endosmosis. The objection to all these theories is, that they are gratuitous; but while the rationale of the remedy must be admitted to be conjectural, there can be no question that it is a nutritive of no ordinary power, and exercises a great control over the cachectic diathesis, and scrofulous deposits. Its curative powers, remarks Dr. M., are more manifest in tubercular phthisis than in any other disease in which he has tried it. He supposes that, in this disease, besides invigorating the system, it also exerts a conservative influence, presenting to the oxygen elements for combustion, and in this manner protecting the nitrogenous tissues; and this opinion is countenanced by the fact that the urine of three phthisical patients was found to contain a smaller quantity of urea after they began to take the oil, than it exhibited before. Within the last two years he has prescribed it in thirteen well-marked cases of tubercular phthisis, and the results have been that, in two, it excited hemoptysis or diarrhœa, and was discontinued; in two, no effect whatever was perceived; in five, the patients were materially benefited, and were still persisting in its use a few months ago; and in four, they have been to all appearances cured, having regained their flesh and strength; their cough and humid respiration having ceased, and their circulations returned within the limits of health.

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Datura Stramonium as an Emmenagogue.—Dr. B. F. Jones* proposes the datura stramonium as a remedy in cases of suppressed menstruation. He details the particulars of a case in which it seemed to act beneficially, and says, that he has derived advantage from it in other cases similar in character. He prescribes it in the form of tincture.

Muriate of Opium.—Dr. Nicol† recommends the muriate of opium to practitioners as possessing advantages over all the other preparations of that drug. It is the only one which, according to his experience, does not produce headache. He esteems it a more eligible opiate than the salts of morphia. The following is the formula by which he prepares it: The best powdered opium, one ounce; muriatic acid, one ounce; distilled water, twenty ounces; Mix. Shake this mixture very frequently every day, for fourteen days; then strain and filter. The dose is from twenty to forty drops.

Scutellaria Geniculata in Epilepsy.—Dr. Evans‡ relates some cases of epilepsy, in which he thinks he has derived advantage from the use of the *Scutellaria geniculata*, or skull cap. He administers the remedy in the form of an infusion, a drachm of the skull cap to eight ounces of boiling water, of which the dose is two tablespoonfuls, every eight hours, increased after a week to two ounces. It is to be continued five or six months, in order to demonstrate its superiority over other remedies in the disease.

Iodine an Antidote to the Venom of the Rattlesnake.—Dr. Whitmire§ has applied the tincture of iodine in several accidents of this sort, and, from the experience he has had, concludes that iodine is an antidote to the poison in animals and the human subject. His manner of employing it is to paint the part bitten, and so far as the swelling extends, with three or four coats of the tincture daily; and to follow up the swelling where it extends. By the time the third application is made, the tumefaction will generally cease to progress, and in a few days more the parts will return to their natural state.

* Western Journ. Med. and Surg., April 1848.
† Dublin Med. Press, Feb. 1848.
‡ British Am. Journ. Med. &c., Jan. 1849.
§ North-Western Med. and Surg. Journ.

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Indian Hemp.—Dr. Ruhbaum, of Potsdam, has employed the cannabis indica in facial neuralgia with the most satisfactory results. In more than thirty cases decided benefit was experienced, and a number were entirely relieved. He remarks that some very delicate individuals were seized with a little giddiness, lassitude in the limbs, &c., while others were excited to great mirth; but that all these symptoms subsided in a short time. The dose in which he administered it was from sixteen to twenty drops of the tincture, containing about one grain of the resinous extract. Dr. Christison says he has used the Indian hemp "a good deal, and with decided success, in diseases at large, to obtain sleep." In toothache, rheumatism, and even in tetanus, it is said to have proved an efficient remedy.

Chloroform.—The honour of giving chloroform to the world is shared between Liebig, Soubeiran, and Guthrie. By each of these chemists, without any concert of action, or knowledge of each other, it was discovered at nearly the same time; but the credit of having indicated its remedial applications is unquestionably due to our countryman. Dr. Samuel Guthrie, late of Sackett's Harbour, N.Y., published an account of its therapeutical effects, and of the mode of obtaining it, in January 1832.* "For six months," he remarks in his first communication, "persons have drunk of the solution of chloric ether" (prepared by the same process as that used in obtaining chloroform), "not only very freely, but frequently to the point of intoxication." He found it promptly to produce a lively flow of spirits, and to leave little of the depression, which is consequent upon the use of alcoholic drinks. This free use of the article he encouraged, in order to ascertain, as far as he might, its probable value as a medicine; and he concluded from all that he observed, that it "promised much as a remedy in cases requiring a safe, quick, energetic, and palatable stimulus." He placed some of it in the hands of Prof. Eli Ives, and of his son, Dr. Nathan B. Ives, who reported to him, on the 2d of January, 1832, that they had given it in asthma, internally, and that it afforded speedy and effectual relief; that they had caused it to be inhaled in a case of pulmonic disease attended by general debility and difficult respiration, and that "its immediate effects, besides giving relief, was that of giving a pleasant sensation." They found it, in other cases, to allay irritation in the nervous sys-

* See Amer. Journ. Sci. and Arts, vol. xxi. 64, and xxii. 105.

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tem, abate the heat of the skin, relieve spasmodic cough, and act, generally, as a diffusible stimulant.*

These interesting observations awakened but little attention, and the new remedial agent fell into comparative neglect, until the discovery of the anæsthetic virtues of sulphuric ether, at Boston, drew the minds of professional men again to the subject. Chloroform, in the mean time, had been analyzed by Dumas, and its precise composition revealed. The experiments of Prof. Simpson established its anæsthetic powers, and proved that, for the production of insensibility, it was, on many accounts, superior to ether, which it has in a great measure superseded.

Anæsthetics have now taken a permanent place among the resources of the surgeon, the accoucheur, and the physician. It is only of the applications of which they are susceptible in the practice of the latter, that it will be expected of us to speak in detail.

Etherization.—The novelty and interest of this subject justify us in going more into detail respecting it, than we have ventured to do on most of the subjects embraced in this Report. It was not long after the introduction of ether vapour into surgical practice, before physicians began to apply it to various forms of disease; and although but little more than two years have elapsed since its remedial powers were first tested, enough has been ascertained to establish its claims to a high rank among our therapeutic agents. One of the first cases recorded in which etherization was practiced for the relief of disease occurred in Turin. M. Pertusio,† surgeon to one of the hospitals in that city, caused a patient to inhale the vapour of ether for traumatic tetanus, on the 13th of Feb. 1847. The muscular contraction was instantly overcome, and although the tetanic symptoms reappeared as soon as the influence of the ether passed away, by its continuance for several days the disease was at length subdued. On the 4th of March, the patient had passed a week without experiencing the slightest symptom of tetanus. Mr. Lansdown, of the Bristol General Hospital,‡ reports a case of this disease in which the inhalation of ether was successful. Tetanus followed amputation of the foot for disease of the tarsal bones. Ether was at once resorted to, and under its action the patient was at once able to open his mouth and receive nourishment; but five

* Am. Journ. Sci. and Arts, vol. xxi. 406.

† Western Journ. Med. and Surg., June 1847.

‡ London Lancet, Oct. 1848.

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days after the practice was instituted he was not able to swallow the smallest quantity of fluid except when under the influence of the vapour. The case persisted for three weeks, and throughout the whole period, remarks Mr. L., "ether was the sheet-anchor," affording, every time it was used, instant relief from spasms of intense severity. A case is related by Mr. Chalmers,* of the Liverpool North Dispensary, in which recovery ensued upon the inhalation of ether. The subject, a muscular young man, experienced the disease in an aggravated form. Three weeks after its invasion, his legs and thighs were still so rigid that a stout man was not able to flex them upon the abdomen. The spasms always yielded to the inhalation, and the only cry of the patient was that his attendants did not give him enough ether. In a case recorded by Mr. Hawkesworth,† the remedy succeeded after various other measures had failed to overcome the violent muscular contractions. Mr. Hapgood‡ publishes a successful case. Dr. E. W. Theobald, of Baltimore,§ reports an interesting case in which ether exerted the happiest effects. A quarryman, whose hand had been lacerated by the accidental explosion of a blast, experienced a fortnight afterwards symptoms of tetanus. These were well marked in a few days, when he was subjected to the influence of ether. He fell asleep, and the spasms relaxed. The remedy was continued, always with the same result, and at the end of three weeks the patient was dismissed cured. Dr. Parrish‖ gives the particulars of a case in which the disease supervened upon phlegmonous erysipelas of the hand and arm, and after resisting the action of assafetida, opium, &c., yielded finally to etherization. Several hours refreshing sleep followed its first trial, and convalescence was soon established.

Chloroform has been employed with similar success in this refractory disease. Mr. Baker¶ has recorded an interesting case in which recovery followed its use under extremely unpromising circumstances. Every muscle of the patient seemed implicated in the spastic action, and though he remained conscious, he had lost all power of speech and deglutition. It was impossible to give medicines, and his attendants made ineffectual efforts to administer an enema. Chloroform was applied to his nose and mouth on a handkerchief, and in about three

* Prov. Med. and Surg. Journ., June 1847. † Ibid.
‡ Med. Times, Jan. 1848.
§ American Journ. Med. Sci., Jan. 1848.
‖ Trans. Coll. Phys. Phila., vol. ii. No. 4.
¶ London Lancet, June 3, 1848.

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minutes the muscles began to relax; for a short time he muttered incoherently, then answered rationally two or three questions, and finally sank into a sound sleep, with the muscular system relaxed and free from convulsions. In about two hours he awoke, with the free use of his limbs restored. Asking to be assisted to the night-chair, he had a copious stool, entered into a rational conversation with those around him, and experienced afterwards no return of the tetanic spasms. Dr. S. C. Thornton* recites the history of a case which he treated successfully with chloroform—the only case of traumatic tetanus, he remarks, which, during a practice of twenty-eight years, he has seen relieved. The subject was a stout Irishman, and the disorder resulted from a trifling injury on the foot. After bleeding, blistering, calomel, and morphia had been resorted to, the agony of the patient continued unabated. The spasms recurred every twelve or fifteen minutes. He was at length subjected to the action of chloroform and ether, and no sooner was the influence established than he cried out, "I am easy now." Not only were the paroxysms shortened; the intervals between them grew longer, and in a fortnight he recovered. A case of traumatic tetanus in a boy, aged 17 years, is mentioned by Dr. C. A. Worthington† in which chloroform afforded temporary relief; but the spasms returned, and the patient eventually died. A case of the same character occurred in Columbia, Tennessee. The relief was only transient; but the chloroform was not continued as it ought to have been.‡

Etherization has also been successful in the idiopathic form of this disease, an interesting case of which is reported by W. H. Cary, Esq.§ The subject was a little girl, nine years old, who complained one cold day of a cramp in her fingers, shortly after which complete emprosthotonos supervened. Purgatives, opiates, the warm bath, were tried in vain. On the sixth day, she had nearly lost the power of speech and of deglutition; the diaphragm was rigidly and painfully contracting, and she was becoming exhausted. Chloroform was given once and repeated; the little patient slept quietly till morning, and then rose quite well. A remarkable case is given by Dr. Maddin,‖ at the time of reporting it, a student of medicine in the University of Louisville. In August, 1848, a horse belonging

* New Jersey Med. Rep., Oct. 1848.

† Prov. Med. and Surg. Journ., April 1848.

‡ Western Journ. Med. and Surg., Jan. 1849.

§ London Lancet, Feb. 19th, 1848.

‖ Western Journ. Med. and Surg., Feb. 1849.

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to his landlord, in Alabama, was found in the morning affected with lockjaw. Mr. M. saw the animal late in the evening, when he was lying on his side, unable to raise his head or move his limbs; in a word, affected with universal rigidity. Half an ounce of laudanum was given, in conjunction with 25 grains of camphor, after which, before the medicine had had time to produce any effect, chloroform was applied. In less than two minutes, the limbs of the horse had become flexible; his jaws could be separated; his muscular system generally was relaxed. This state continued for a quarter of an hour, when the spasms began to return. He was a second time subjected to the influences of the anæsthetic, and when this had passed off, it was ascertained that he could stand on his feet. In less than three hours from the second time of administering it, the animal was grazing about the lot, and next morning was, to all appearance, perfectly well.

In the convulsions of children, chloroform and ether have been applied with benefit. Dr. Wyatt* relates a case, that of a boy 11 years old, in which the symptoms were much mitigated by the inhalation of ether. Dr. Sabin† treated a case of it in a child, five months of age, with entire success. The convulsions were not only suspended at the time, but never returned.

Prof. Jackson,‡ at a late meeting of the College of Physicians, of Philadelphia, detailed the particulars of a case of convulsions in a lady, excited by stricture of the upper portion of the rectum, which prevented the flatus from passing, in which chloroform was inhaled in surprising quantities, and the patient recovered. On the 1st of January, 1848, an attack of spasms occurred, and continued for several hours; the urine was retained, from a spasmodic affection of the urethra and neck of the bladder. Relief was promptly experienced after the patient had inhaled a few drops of chloroform, and the remedy was continued for several weeks in gradually increased doses. "Dr. Jackson was sent for one morning, and found the mother of the lady in great alarm, in consequence of the quantity of chloroform which her daughter had taken. She had inhaled two ounces in the course of the evening; then two ounces more, and an additional ounce in the course of the night; being five ounces inhaled from 5 o'clock, P.M., until 10 o'clock of the ensuing morning. Dr. J. found her with feeble pulse, diminished

* Western Journ. Med. and Surg., April 1848.

† Boston Med. and Surg. Journ., April 5, 1848.

‡ Trans. Col. Phys., Philadelphia, January 1849.

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temperature of body, and considerable excitement of mind; she remained cold and almost pulseless for nearly forty-eight hours, when all the effects of the inhalation disappeared; and, what is remarkable, since that time she has had no return of her spasms.

Puerperal convulsions have proved manageable, in numerous instances, by etherization. A case is recorded by W. J. White, Esq.,* in which chloroform was applied with signal success. The convulsions came on during a tedious labour, and persisted, in spite of all the remedies employed, until the woman was brought under the influence of the anæsthetic, when they subsided; contractions of the uterus soon followed, and in an hour more she was safely delivered of a male child. Mr. Fearn† has used the remedy with equal success in this appalling disease. During a whole day, his patient had been insensible; but, under the effects of the chloroform, the convulsions ceased, and labour was terminated with instruments. Mr. Clifton‡ reports a case of this disorder in which chloroform proved equally efficacious. From the most violent convulsions, the woman passed into a tranquil sleep under its influence. Two cases are recorded in the *New York Journal of Medicine* (July 1848), in which the same practice was effectual. In one, the convulsions never returned after the inhalation of the vapour; in the other, they were suspended during an instrumental delivery, and returned, much mitigated, only on being excited by noise. Prof. White§ reports an interesting case of its successful use in this affection. His patient was pregnant with twins. The convulsions quickly subsided on the induction of anæsthesia, and the children were delivered without difficulty.

Prof. Channing, in his work on "*Etherization in Childbirth*," gives the history of three cases of puerperal convulsions, which were treated, one under his own observation, by chloroform and ether. "I passed twenty-four hours with my patient," says Prof. C., "and had opportunities to observe symptoms, and the effects of etherization. Inhalation was used to prevent the convulsions. It was used for some time at the very beginning of uterine effort, and was continued until it ceased." Dr. S. N. Harris‖ mentions a case in which ether was prescribed with success. The woman was not yet de-

* London Lancet, March 1848.

† Med. Gaz., Feb. 11, 1848. ‡ Ibid.

§ Buffalo Med. Journ., September 1848.

‖ Charleston Med. Journ., September 1848.

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livered; the convulsions were frequent and violent, continuing from twenty to thirty minutes. Under the action of the anæsthetic, they promptly ceased; ergot was administered, and the labour brought to a favourable termination. A case is recorded by Dr. Harding, of New Brunswick,* in which the convulsions yielded immediately to chloroform inhalation. No untoward effects followed etherization in any of these cases.

Hysteria has been relieved by etherization. In a case related by Mr. Wilkinson,† violent paroxysms were subdued in from one to two minutes by the vapour of ether. Spasmodic asthma has repeatedly yielded to its administration. Mr. Greenhalgh‡ and Mr. Chandler§ report successful cases. In the latter, chloroform afforded relief from the distressing symptoms, after ether had been applied without effect. A case of bronchitis is recorded|| in which a most troublesome symptom was overcome, and convalescence hastened, by the use of chloroform. An aged lady, in whom all the acute symptoms of the disease had been removed by appropriate treatment, still experienced a cough, with extreme restlessness and sleeplessness. She could not bear any description of opiate, and three nights had been passed without any sleep whatever. Chloroform was inhaled, and under its immediate action she had two hours of most refreshing sleep; her nights afterwards were good, and she remained free from the symptoms mentioned.

Chloroform has been applied beneficially in chorea. Mr. Harris¶ mentions the case of a girl, aged 17, who was predisposed by a chlorotic state of the constitution to the disease, and in whom the attack was brought on by fright. Other remedies having failed to subdue the involuntary muscular movements, she was, at the end of ten days, subjected to the influence of chloroform. The muscular twitchings were almost magically arrested, and a calm sleep followed; and, by persevering in the daily use of the agent for a fortnight, convalescence was fully established. It is proper, however, to state that other appropriate treatment was employed in conjunction with the chloroform.

In mania and delirium tremens, chloroform and ether have been resorted to with eminent advantage. Dr. Boyd** relates cases of mania, chronic and acute, in which he prescribed inhalations of

* Boston Med. and Surg. Journ., February 21, 1849.
† London Lancet, July 1847.
‡ Ibid., Dec. 1847.
§ Med. Gaz., December 1847.
|| London Lancet, Dec. 1847.
¶ Ibid., June 1848.
** Ibid., August 1847.

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ether, with the effect of tranquillizing the patients at a time when they were most furious. Dr. Skae, physician to the Royal Edinburgh Asylum, bears equally favourable testimony to its tranquillizing effects in such cases. The most violent of his patients were soon put into a calm and profound sleep by the ethereal vapour.

Dr. E. B. Moore* mentions a case of mania in a woman apparently excited by odontalgia. She could not be prevailed upon to have the tooth extracted, or to take an anodyne which might stop her raving. Finally, she was forced to inhale chloroform, the effect of which was prompt and decided. After a second application, she slept soundly for several hours, and awoke perfectly rational. Her defective tooth was extracted under the influence of chloroform, and since that time she has enjoyed a comfortable state of health. Dr. M'Gavin† reports favourably of the use of chloroform in the Montrose Lunatic Asylum. "Its beneficial effects," he remarks, "have been conspicuous in many cases, and in some has had a considerable share in conducing to recovery."

In delirium tremens, its curative powers have been shown to be very great. Dr. Anderson‡ mentions a case in which, after the failure of large doses of opium to procure sleep, ether was successful, and the man almost immediately recovered. Similar cases are reported in the *Boston Medical and Surgical Journal*, and in the *London Lancet*. Etherization, in fact, has rarely failed of the desired effect in this refractory disorder, and is, confessedly, not only much more prompt, but much more certain in its action than any opiate hitherto employed. Dr. Joseph Parrish, editor of the *New Jersey Medical Reporter*, gives the history of an instructive case.§ The various preparations of opium were pushed as far as it was deemed safe to prescribe them, without inducing repose. Ether was administered with only partial success; but, under the combined action of chloroform and ether, the patient, "in less than fifteen minutes, fell back upon his pillow in a sound slumber, which continued without interruption for six hours; when he awoke, and expressed himself quite well." Dr. Whiting‖ gives a case in which "*fifty grains of opium*, besides a large quantity of camphor julep, and Hoffmann's anodyne," were taken by a man labouring under mania-à-potu, in eight hours. Sleep, nevertheless, was not procured, and chloroform

* Boston Med. and Surg. Journ., April 4, 1849.

† Dublin Med. Press, from Monthly Journal.

‡ Annalist, N. Y.

§ New Jersey Med. Rep., July 1848.

‖ Ohio Med. and Surg. Journ., March 1849.

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inhalation was resorted to. Under its operation, the patient became quiet, fell into a sound sleep, and recovered. Dr. Evans* mentions a case in which he administered chloroform in this disorder with but partial success.

A case of hydrophobic mania was relieved, in Liverpool, by the continued use of chloroform, as related by R. Y. Ackerly, Esq., in the *London Lancet* for October 1848; and a case of hydrophobia is reported by Dr. Hartshorne,† in which, though the issue was fatal, as usual, this remedy mastered the violent delirium and horror of the disease. A case of supposed hydrophobia in a lady residing in Camden, N. J., is reported to have been cured by the use of this agent, under the care of Professor Jackson. Doubts have been expressed whether this was a true case of rabies canina, and Professor J. is not himself prepared to assert, positively, that it was, although he inclines to that belief.‡

When the antispasmodic powers of chloroform were made known, it was early suggested that the remedy might prove a precious resource in mastering the spasms of cholera. Opportunities were not long wanting to make trial of its virtues in that disease, and while we are compelled to record that, as a curative measure, it has not equalled the hopes of some of its panegyrists, as a palliative means it has not disappointed the expectations concerning it. In the *London Medical Times*, cases of cholera were reported, a few months since, in which its action was strikingly favourable. The remedy was given internally, in combination with brandy and water. In another part of this report, reference will be made to a case treated on the Mississippi by chloroform administered in the same way. A cure is reported by Dr. Moffat in a case which lately occurred in England, and was on the borders of collapse before medical aid was obtained. For nine hours the patient had been vomiting incessantly; diarrhœa had, all that time, been profuse; he was blue, and his extremities were cold and cramped when seen by Dr. M., and not the slightest pulsation could be felt in either arm. Laudanum was given, but he instantly vomited it up. "I then," says Dr. M., "gave him a dose of chloroform by inhalation. He fell gently back, the vomiting ceased, and he lay quite calm." The anæsthesia was kept up, more or less, for four hours, during which time a little brandy, camphor,

* Annalist (N. Y.), February 1, 1849.

† American Journ. of Med. Sci., Oct. 1848.

‡ Trans. Coll. Phys. Phil., Jan. 1849, and April 1849.

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&c., were given, and his body was kept warm by bottles of hot water and a load of bed-clothes. He recovered.

In nephritic and other forms of colic, anæsthetics have exerted the happiest influence, and take precedence of all other remedies. Dr. Stillé mentioned cases of the former affection, thus successfully treated, at a late meeting of the Philadelphia College of Physicians. Earache, sick headache, and many other transient disorders are reported in the journals as having yielded to their use. A curious case of recovery of hearing in a woman in Georgia is reported in the *Southern Medical and Surgical Journal.* She was etherized by a dentist in view of having a tooth extracted. Her hearing, which had been long impaired, was restored by the etherization.

In dysmenorrhœa, the practice has proved highly satisfactory, mitigating the acute sufferings when opium, camphor, and all other anodynes had proved ineffectual. The nature of this disease is such that no remedy which stops short of removing the cause can be more than palliative; but in many cases, the anguish is so intense that it becomes a matter of great concern to find a palliative remedy. Dr. Bennett* notices cases in which the relief afforded by chloroform was very decided. Dr. Withers† publishes a remarkable case of the sort. The sufferings of his patient were such as to excite apprehensions for her safety, and were not materially lessened by the bleedings and large doses of opium to which he resorted, but yielded instantly to chloroform. He found it necessary to continue the use of the anæsthetic, at intervals, for about eighty hours, at the end of which time his patient was entirely relieved. When he commenced its use, it required forty drops to induce anæsthesia; but after it had been repeatedly administered, and the violence of the paroxysms had abated, it was found that the same effect was produced by ten drops. Dr. Griscom‡ has recorded a case of dysmenorrhœa in which the use of ether, repeated every hour to an extent short of destroying consciousness, was attended with satisfactory results.

Local Application of Chloroform.—Three cases of lumbago are reported by M. Moreau,§ of Tours, in which immediate and permanent relief was obtained by the application to the loins of some lint on which a few drops of chloroform had been poured. In order

* London Lancet, Feb. 1848.

† Western Journ. Med. and Surg., Feb. 1849.

‡ Trans. Coll. Phys. Phil., April 1849.

§ L'Union Méd., Oct. 1848.

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to prevent the evaporation of the chloroform, oiled silk should be laid over the lint. In a few minutes, it is said, the patient complains of a burning heat in the part, which becomes red; occasionally vesicles are formed; at the same time the rheumatic pain ceases. That the relief does not depend upon the irritation of the chloroform, is proved by the fact that it did not follow the previous application of sinapisms in some of the cases; and M. Moreau's theory is, that it reaches, by imbibition, the cutaneous and superficial muscular nerves, upon which it exerts its anæsthetic power.

Dr. Hays* relates a case of neuralgia in a man fifty years of age, in which local anæsthesia was produced, with, apparently, the happiest effects. The part affected was the foot, which Dr. H. directed to be enveloped with a pledget of lint wet with chloroform. Next morning he found his patient free from pain, which all the remedies previously employed had failed to relieve. On a recurrence of the pain, some weeks after, chloroform was again effectual. Dr. Bond† relates an analogous instance. An elderly lady had facial neuralgia, which was promptly relieved by the local application of chloroform. Dr. Parrish‡ has used chloroform, locally, in deep-seated pains of the eye, as well as in superficial pains, and has derived from it the most striking relief in cases where large doses of opium were of little avail.

In a case of pelvic tumour, where severe pains affected the inferior extremities, in consequence, probably, of pressure of the nerves by the tumour, M. Legroux§ resorted, with success, to the local application of chloroform, after the usual means had been tried in vain. He placed a sponge containing chloroform in the foot of a large boot of wax cloth, constructed for the purpose, so that the vapour only came in contact with the skin. A feeling of warmth, prickling, and numbness was soon experienced. After its application for a few hours, the pain was no longer felt. The immunity from it was enjoyed for several days, and when it at length returned, the same treatment was equally successful. In a late number of the *Gazette des Hopitaux*, it is stated that M. Jules Roux applies chloroform to the surfaces of wounds after operations, and thus secures local insensibility for forty-eight hours. He also applies it to the surface

* Trans. Coll. Phys. Phil., 1849.

† Ibid. for Feb. and April 1849.

‡ Ibid.

§ L'Union Méd., Oct. 1848.

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of ulcers to which he is about to apply the caustic, and in this way prevents much pain.

Internal Use of Chloroform.—Dr. Hartshorne, at the suggestion of Prof. Wood, has made trial of chloroform internally, in a number of patients at the Pennsylvania Hospital.* On account of its pungency, it requires to be given in a large quantity of water. A woman, with a painful neuralgic affection of the head, took 75 drops at night, slept better than she had done for weeks, even after inhaling chloroform or ether, was unusually comfortable the next day, and continued to improve under its use. It answered admirably as a substitute for Dover's powder in a case of rheumatism, and afforded prompt relief in a case of flatulent colic. Dr. R. S. Strother administered 100 drops to a cholera patient, with the effect of relieving the cramps, the vomiting, and all the other alarming symptoms, for several hours, during which time other remedies were applied, and the patient recovered.† It was given to a patient labouring under traumatic tetanus, by Dr. Brickell,‡ of New Orleans, in doses of a hundred drops, but without any very decided advantage; and the disease afterwards yielded to large doses of sulphate of quinine. Dr. J. B. Warriner§ mentions a case of sick headache and a case of dysmenorrhœa, in which it was resorted to with immediate relief. The dysmenorrhœa was regarded as a neuralgia of the uterus.

Dangers of Etherization.—No one any longer questions that these are real. In many cases, persons have experienced alarming symptoms from it; and in a number, death has ensued. How many fatal instances are justly ascribable to it cannot, with any degree of certainty, be ascertained; but the list of such casualties has already swelled to a formidable length. We have taken considerable pains to collect the particulars of all the fatal cases recorded, and the following is a summary of our researches: 1. A young woman, well formed, and apparently in good health, died at Boulogne, while undergoing a slight surgical operation, after having inhaled chloroform.‖ 2. A young man, in London, previous to having a tooth extracted, breathed chloroform; felt uncomfortable afterwards; next

* Am. Journ. Med. Sci., Oct. 1848.
† West. Journ. Med., Feb. 1849.
‡ N. O. Med. and Surg. Journ., Jan. 1849.
§ New Jersey Med. Reporter, April 1848.
‖ Lond. Med. Gaz., Aug. 1848.

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day had hæmoptysis, and four days subsequently, after a sudden gush of blood from the lungs, experienced fatal syncope.* 3. A man at Auxerre, aged fifty-five, of robust constitution, about to submit to an operation for the removal of a cancerous tumour, expired suddenly on the 10th of Aug., 1847, after having inhaled ether for five minutes.† 4. A boy died shortly after the inhalation of ether, preparatory to suffering amputation of the thigh for compound fracture.‡ 5. A man who had entered a hospital in Paris for a slight bronchial affection, breathed the vapour of ether, in anticipation of having a tooth extracted. Three or four days afterwards he was attacked with loquacious delirium, and died. The autopsy revealed intense arachnitis. In this case, etherization was repeatedly practiced without inducing anæsthesia.§ 6. A girl, aged fifteen, about to have the nail and matrix of the great toe removed for onychia, was put under the influence of chloroform. She breathed the vapour quietly for about half a minute, and the operation was performed. In less than two minutes it was apparent that life had become extinct.‖ 7. A druggist's apprentice had been in the habit of inspiring chloroform for the sake of the pleasurable sensations created by it. He was seen, one day, to retire to the back part of the warehouse, where, leaning his body forward on a counter, and stooping his head, he seemed to be inhaling the vapour from some folds of his apron. In about twenty minutes, his father, who went to him, found him dead.¶ 8. In the Beaujon hospital, a young man, in June last, submitted to disarticulation of the thigh for severe fracture of the shaft of the femur, previously to which he was put under the influence of chloroform. He died upon the table. 9. A timid young woman, at Hyderabad, India, about to have a finger amputated, inhaled the vapour of chloroform from a pocket handkerchief. Scarcely a drop of blood was lost in the operation; nevertheless, in a few seconds, the patient seemed comatose, and never breathed afterwards. Death, in this instance, appeared to be almost instantaneous.** 10 and 11. Two cases are referred to in the *American Journal of the Medical Sciences*, in which death was attributed to the inhalation of chloroform. They are recorded in the *Provincial Medical and Surgical Journal* for July 1848; but, in

* London Lancet, July 1848.
† Journ. de Connais. Méd. Chirurg.
‡ Lond. and Ed. Month. Journ., June 1847.
§ Am. Journ. Med. Sci, April 1848.
‖ Med. Times, Feb. 1848.
¶ London Med. Gaz., Feb. 1848.
** Ibid., July 1848.

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the absence of particulars, it is impossible to form a satisfactory opinion as to the cause of death. 12. A solicitor applied to a dentist in London to extract a tooth; with reference to which, he inhaled the vapour of chloroform. The effect at first was so slight that he requested to have the agent renewed; but before this could be done, and in a second after he had spoken to the operator, his head and hand were seen to drop, and with this movement he expired. The autopsy discovered disease of the heart and liver; and yet the appearance of the young man was healthful, and according to the testimony of his father, he had not suffered from difficulty of breathing, or any other affection.* 13. A man, labouring under fistula, about to be operated upon by Prof. Parker, inspired chloroform, from which no unpleasant effects resulted. In three weeks, he submitted to a second operation, and his surgeons, Drs. Burs and Rotton, again administered the anæsthetic. The operation lasted about a minute; while it was in progress, the patient indicated consciousness of pain; but in a moment after, his pulse sank, and it was evident that life had suddenly ceased. 14. A second fatal case occurred in New York, on the 19th of January, of the present year, a report of which has been published by Dr. Buck,† the attending surgeon. A man, apparently in good health, with the exception of a local ailment of the rectum and penis, took chloroform preparatory to undergoing a trivial operation. In a moment, Dr. Buck observed that his face and neck had become blue, his pulse imperceptible at the wrist, and his whole body relaxed; and, after two or three gasps, he ceased to breathe. The chloroform was inhaled from a napkin; a portion of the same article had been administered to a patient a few days before, without any unfavourable effects; and what is more remarkable, the unfortunate man had himself respired it a few weeks previously, with impunity. 15. The death of Mrs. Simmons, at Cincinnati, after the administration of chloroform, by a dentist, has been so often quoted, that we need not do more than refer to it here. 16. A young woman in Boston was found dead in her bed, on the morning of the 7th of March, 1849, and the presumption is that her death was occasioned by chloroform. She was found lying with a handkerchief impregnated with chloroform, pressed against the nostrils, and a bottle of the same in the bed. She had once taken chloroform while under a surgical operation, and said she should like to take it often. The opinion of the medical gentleman who

* London Gazette, July 1848. † Phila. Med. News.

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made the post-mortem examination was, that she had died by the imprudent use of this agent.* 17. A young man entered the Hôtel Dieu of Lyons, on the 29th of Jan. 1849, for the purpose of undergoing a surgical operation, was subjected to the influence of chloroform, and expired in a few minutes. 18. A man, aged 36, died in the Western Dispensary, London, on the 17th of February last, after inhaling half an ounce of chloroform, in anticipation of having a toe amputated. Death followed the inhalation in about ten minutes, and the verdict of the coroner's jury was, that the man "died of chloroform properly administered."† 19. The *London Lancet*, of Feb. 24th, copies from *L'Union Médicale*, the details of a fatal case from the inhalation of chloroform. The subject was a boy, 17 years of age, who laboured under caries and necrosis of a finger, which was about to be amputated, and the anæsthetic was given. Death occurred in five or six minutes. 20. The *London Medical Gazette*‡ notices a fatal case, reported in the *Glasgow Herald*. A young man was about to have the nail of the great toe removed, and to destroy pain inhaled chloroform, from the effects of which he almost instantly expired.

A more extended search, no doubt, would enable us to add to the number of such casualties; for, as early as November 1847, less than a year after the introduction of anæsthetics, Blandin stated, in the *Gazette des Hopitaux*, that twelve fatal cases had been traced to the inhalation of ether. For all practical purposes, the instances cited will probably be deemed sufficient, since they but too clearly show how suddenly human life may be terminated by this agency. Rejecting case 2, as one in which chloroform probably acted merely as an exciting cause of the hemorrhage, and the Cincinnati case, and the case of the druggist's apprentice, as cases of bad management and neglect; and rejecting also case 4, and the case at Beaujon hospital, in which the fatal issue may have been due rather to the nature of the wound and the shock consequent upon it, than to the use of the anæsthetic; setting aside cases 10 and 11, and those of M. Blandin, as wanting in the details necessary to the formation of a correct judgment; and, finally, excluding the first New York case, upon which doubt was cast by the autopsy, there still remain from ten to twelve cases in which the committee do not see how they can resist the conclusion that the unfortunate issue, sudden, unexpected,

* Am. Journ. Med. Sci., April 1849.
† London Lancet, April 1849. ‡ Jan. 1849.

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apparently unavoidable, was brought about by the use of these agents. They believe the evil must be admitted to have this extent at least. How, then, does the case stand?

From published records, it appears that, in the Massachusetts General Hospital, up to the 1st of April 1848, one hundred and fifty-four operations had been performed upon persons under the influence of chloroform or ether; that there had been performed, at the same period, in the New York Hospital, thirty-seven operations; in the Clinic of the University of Pennsylvania, thirteen; in the Clinic of the Jefferson Medical College, forty-five; and in the Cincinnati Hospital, sixteen, under similar conditions, without a single fatal instance in either of those institutions. As the practice has been continued, we may assume that the number of operations performed under these circumstances, in the hospitals and clinics referred to, has been more than doubled by the present time. By the surgeons and dentists of the United States, anæsthetics have been pretty generally employed in their practice; they have been extensively used by our obstetricians, one of whom, Prof. Channing, refers to five hundred and seventy-four cases in which they were administered; at the same time that boys in counting rooms and in the streets, and people everywhere, for amusement, have been in the habit of inhaling the vapour of chloroform ever since it came into general notice, until the instances in which it has been so experimented with might be counted by thousands. In all these multiplied trials, but four fatal instances have been recorded.

When the practice had been pursued less than a year, Mr. Lawrence stated that the trials with ether in a single London hospital had extended to between two and three thousand cases. One dentist in that city, up to the middle of July last, had administered anæsthetics more than three thousand times. In a London lying-in hospital, chloroform has been resorted to in every case of labour since it was discovered. At Paris, Velpeau says no operation is performed in the hospitals without it; that "the patients insist upon its use," and the surgeons could not reject it if they would. Assuming, as there are good grounds to believe, that the operations performed in that metropolis amount to more than a hundred a month, there have been, in that city alone, up to this time, three thousand persons subjected by the surgeon to the influence of anæsthetics. It can hardly be doubted that the number far exceeds this, when it is remembered that, within this period, Paris has been twice the theatre of bloody conflicts which have filled her hospitals with wounded sol-

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diers and citizens. In all the provinces of France, moreover, these agents are in common use with the profession, and as the reports of success and failures for the most part find their way into the journals of the capital, it may be presumed that the casualties attending the practice have generally transpired. And the result is, that, of numbers, almost numberless, who have been its subjects, ten, perhaps fourteen, have died. So many have fallen victims to anæsthesia in all Europe.

The accidents from anæsthesia in the United States have all resulted from the inhalation of chloroform. In Europe, thirteen deaths have been attributed to that agent, and three to the use of ether. Of the deaths from anæsthetics, in all countries, thirteen have occurred in the hands of surgeons; three have happened with dentists; and two have followed the breathing of chloroform for its pleasurable impressions. Not one has been reported in the hands of the physician or accoucheur.

From all the facts before us, it appears that these agents are capable of destroying life, though, in a vast majority of instances, they may be used with perfect safety; that chloroform, especially, is, to some constitutions, a prompt and certain poison, the more to be dreaded because, in the present state of our knowledge, we possess no antidote to its fatal powers. That they are by far our most potent and reliable antispasmodics, and capable of varied and important therapeutical applications. That, in some cases, advantage is derived from a combination of chloroform and ether; and that, in some, where one has failed to secure anæsthesia, the other will accomplish the end desired. That they act with most energy when taken through the lungs, in the shape of vapours; but that they may be administered with good effect by the stomach, or applied locally for the relief of pain. That chloroform should be used with great caution, and only by professional men; that care, during its inhalation, should be taken to secure a due admixture of atmospherical air with its vapour; and that its inhalation ought to be suspended as soon as insensibility is obtained. That, finally, with all the drawbacks upon them, anæsthetics form a most precious contribution to the resources of our art.

LUNSFORD P. YANDELL,
Chairman.

LOUISVILLE, April 21, 1849.

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B.

REPORT OF THE

COMMITTEE ON PRACTICAL MEDICINE.

The committee fear that the report they are about to present will not, in all respects, meet the expectations of the Association. Had their duty been only to record the more important improvements that have been effected in this country, during the past year, in the management of individual diseases, it would have been very readily accomplished. While, in everything relating to general therapeutics, a steady improvement has taken place, the committee are unable to communicate any new plan, or any important modification of the established methods of treating individual diseases, introduced during the past year, which can, with propriety, be ranked as an American improvement in special therapeutics.

The very favourable results which have been obtained from the employment of chloroform, and the other recently introduced anæsthetic agents, for the abolition of pain during surgical operations and in labour, have, it is true, induced the physicians of this country, as well as those of Europe, to make a trial of their effects in various painful, spasmodic, and other nervous affections. But, although the influence of these agents, in several of the diseases in which they have been employed, has proved, to a certain extent, satisfactory, still, their actual value as remedies, and the particular cases and circumstances in which their beneficial agency will be most certainly and permanently displayed, have not, as yet, been established with sufficient accuracy to allow us to rank their employment in any given disease as a decided improvement in its treatment.

The more important and laborious task confided to the present committee is that of reporting on the progress of the leading epidemics of the past year; referring, as occasion requires, to medical topography, and to the character of the prevailing diseases in particular localities, or in the United States generally, during the period of their service.

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To present a full and satisfactory account of the epidemic and endemic diseases which have prevailed during the year that has just closed, in a country so great in extent as the United States—embracing most important differences in the climate; the number and character, as well as the pursuits and social condition, of the population of its several sections, is scarcely possible. A large committee, composed of individuals located in different portions of the Union, with sufficient leisure and inclination properly to perform their respective shares in the task assigned to them, would unquestionably be able, with but little difficulty, to collect a mass of valuable facts in relation to the various endemic and epidemic diseases of our country—their distinctive characteristics—the peculiar circumstances under which they appear, and their ordinary course. It was under this impression, no doubt, that the present Committee on Practical Medicine was organized at the last session of the association. Unfortunately, however, from various unforeseen circumstances, the labour of preparing the report, now to be presented, has fallen almost exclusively upon the chairman; who, even if he had the talents properly to arrange and classify, had not within his reach the means of collecting the materials necessary for the faithful performance of his task. It is hence under very disadvantageous circumstances that the present report has been prepared. The materials of which it is composed have been mainly drawn from the medical journals of the country, particularly those of the Southern and Western States—to the able editors and talented contributors of which the committee acknowledge in the outset their obligation for nearly everything that can be considered valuable which the report comprises.

The committee have confined themselves entirely to a notice of the epidemic diseases which have occurred during the past year. This notice is, in many instances, sufficiently meagre, amounting to a simple statement of the fact that a particular disease prevailed at a certain season in this or that locality. Whenever the committee have been able, they have delineated with some care the peculiar characteristics of the epidemics described by them, as well as the circumstances under which they prevailed, and they regret that from the want of the requisite information, they have been prevented from doing this in every instance. They have refrained from drawing any general conclusions from the few facts they have been enabled to collect. Not only are the leading data in their possession insufficient for the deduction of any important results in regard to

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the causes, relation, and course of epidemic diseases, but the collateral facts necessary to the elucidation of these important points in etiology, are, in many instances, almost entirely wanting, while, in others, they have been too loosely observed and recorded to serve as the basis of any safe generalization.

The typhus, or ship fever has prevailed during the past year, to a greater or less extent, in most of our large seaport towns. Its principal subjects have been the poorer classes of immigrants, who have arrived in vast numbers from Europe, in a condition strongly predisposed to the occurrence of the disease, and who, upon their landing, in the great majority of cases, crowd the ill-ventilated dwellings in the least salubrious portions of our cities. In the early part of the year, the public hospitals of New York and New Orleans, especially, were filled with patients labouring under this disease. In all of the Atlantic cities, particularly those north of the Potomac, a fever, identical in all its symptoms with that affecting the recently arrived immigrants, prevailed somewhat extensively among the poor and improvident inhabitants of the same localities with the former. It was also carried by the immigrants to many of the small towns and villages in the interior.

Thus, in Montgomery, Alabama, the disease prevailed to a very considerable extent. A few cases presented themselves in Irish immigrants, who arrived there sick, or sickened immediately after their arrival; in the majority of cases, however, the fever occurred in the citizens of Montgomery.

In Newark, N. J., the disease was introduced by foreigners coming from New York immediately after landing. It prevailed there to a considerable extent, in many instances spreading through whole families—thus furnishing very conclusive evidence of its communicability. The same statement is true in reference to Pittsburgh, Penn., Hartford, Conn., Rochester, N. Y., and numerous other places.

Fevers of a typhoid type have prevailed, during the past year, in different parts of the United States, as tolerably extensive epidemics, where no suspicion exists of their introduction by persons who had lately arrived from Europe, either labouring under the disease, or strongly predisposed to it. During the months of February and March, a very malignant form of the disease prevailed at Danbury, Conn., and produced considerable mortality. In Alabama, typhoid fever appears also to have been epidemic. In a communication in the

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Western Journ. of Med. and Surg., dated Nov. 5, 1848, Dr. T. C. Osborne states that, on one plantation, in the neighbourhood of Erie, 275 cases of fever had occurred, of which two were cases of typhus, 25 of typhoid, and the remaining 248 cases of remittent and intermittent fever; only five of the whole number proved fatal; one sank under copious hemorrhage from the bowels; one died without any apparent lesion; and two died in convulsions. The boy who was carried off by hemorrhage had been for some time convalescent from typhoid fever. The girl, in whose case no special lesion was apparent, presented in her disease all the symptoms of typhus.

In various portions of Michigan, a very severe epidemic of typhoid fever was observed.

From a very excellent paper by Dr. J. Adams Allen, of Kalamazoo, published in the *Boston Med. and Surg. Journ.* for March 29, 1848, we derive the following particulars in relation to the epidemic in the state just named:—

During the last summer and autumn, physicians had very generally remarked that the endemic fevers of Michigan were much more intractable than had been the case for several years previously. Patients were apt to fall into a typhoid condition, from which they were with difficulty recovered. Even simple agues were noticed to be much less under the control of quinine.

The weather had been extremely variable; scarcely a week passed without a change from one extreme to the other. A thunder storm was succeeded by driving snow within twenty-four hours. It was soon after one of these sudden changes that the first case occurred, so far as Dr. Allen could learn, in his vicinity. This was December 4th, 1847. From that time to the present, new cases have supervened only on the change from mild to cold weather.

Premonitory symptoms, if any, were rare. Occasionally, a severe pain was complained of in some part of the body—the thorax, the arm, the hip, the occiput, or indeed in any other region. Ordinarily, the attack was ushered in by a severe and protracted chill, at the onset appearing like simple ague, but soon becoming more and more intense, until the patient fell into a condition analogous to the severer forms of *congestive fever*, with cold extremities; pulse small and feeble, or entirely absent at the wrist, with profound coma. Respiration extremely quick and laborious, hissing through the clenched teeth. Very generally, during this stage, the surface was remarkably sore, and covered with large, dark, livid petechiæ. Al-

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though the pupil was insensible to light, and the ear to sound, still the slightest touch or motion elicited from the patient agonizing cries or groans. The tongue was either clean or covered with a thin, mottled, white coating; the bowels were constipated; the urine in most cases contained a tenacious, ropy mucus—the sediment was, at times, lateritious, but, ordinarily, white, or slightly tinged with yellow.

The cold stage varied in duration from three to twenty-four hours. Death ensued, often, within a very few hours from the commencement of the attack. On the subsidence of the chill, a considerable remission generally occurred. The respiration continued accelerated, but the pulse was full, and to all appearance natural; the surface became moist and warm, and the petechiæ in a great measure disappeared. The countenance of the patient was free from anxiety, and he conversed confidently of his approaching recovery. Some even insisted upon resuming their customary avocations. The remission seldom exceeded four or six hours, and was followed by a febrile stage.

In this stage the soreness was aggravated, and the temperature of the surface much above the standard of health. The pulse became rapid, small, and wiry; in some instances it was full and hard; in others, the blood seemed to be jerked beneath the finger in balls. The respiration was rapid and laborious; congestion in various parts of the lungs was detected by the physical signs. The head was thrown back; the eyes were distorted, and suffocation seemed imminent. The most furious delirium soon ensued, during which the patient was in a state of constant jactitation; the voice was incoherent, and at times noisy. The delirium generally continued, with some intermissions, until late in the disease. It was most constant and violent at night. The tongue, during this stage, in most cases, became more coated, drier, and darker—or the coat separating, the tongue was left intensely red, dry, glazed, and fissured. Most commonly, erysipelas showed itself on some portion of the surface, generally on the face or around a blistered surface or an old sore. The throat frequently became affected, and ulcerating gave out a profuse and offensive discharge. Intense local pain, irregular in its site, was a common symptom. In a few cases paralysis occurred. The abdomen was occasionally tender upon pressure, but, in general, it was less affected than other parts of the body. In cases which survived for several days, a cough usually came on, accompanied with an expectoration of thick, bloody matter, changing into mucous or purulent, according to the severity of the disease. The febrile stage,

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in some cases, ended fatally in a few days, in others it was protracted for weeks. Convalescence was tedious, and relapses were liable to happen upon every change of weather—cold not only producing new cases, but aggravating those already existing.

The lesions discovered after death were confined chiefly to the thorax and throat. They were, extreme engorgement of the lungs: the parenchymatous tissue being, in parts, friable: ramifications of bronchi filled with a muco-purulent fluid. The bronchi and lower portion of the trachea exhibited marks of inflammation. Recent pleuretic adhesions were sometimes discovered. The heart was engorged with black blood, and tenacious fibrinous concretions extended up and down from its outlets. The posterior nares and palate were usually more or less ulcerated.

In regard to the treatment, venesection, if at all permissible, was so only in the very onset of the disease—later in the disease, general blood-letting was, we are told, inadmissible, and, locally, could be used only with great caution. Remissions were usual after venesection, but they were deceptive, and in nearly every case terminated unfavourably. External heat and stimulants, with sinapisms to the extremities and abdomen, until reaction ensues, was found the most appropriate treatment. Internally, large doses of quinine and ammonia, in a tumbler of strong brandy toddy. After reaction ensued, the bowels were cleared out by a gentle cathartic, but active purging was avoided. Castor oil with a few drops of spt. terebenth. seemed to act the most favourably. Quinine, or the bark in substance, was given throughout the febrile stage. Two grains or even more of the quinine every two hours. Its effects were to calm the delirium and promote convalescence. Diaphoretics, especially the ipecac., alone or combined with camphor, were found decidedly beneficial, if the irritability of the stomach allowed them to be retained; opiates seemed to aggravate the delirium and restlessness. Blisters were so apt to excite an erysipelatous inflammation, or to produce a foul sloughing ulcer, that they were viewed as doubtful remedies.

During the period of convalescence a mild infusion of serpentaria, with camomile and quassia, was found useful; and as expectorants, the sanguinaria with carbonate of ammonia, the brown mixture, with balsam copaiba, &c.

In North-eastern Missouri, typhoid fever prevailed epidemically. Dr. Sickler, of Monticello, remarks that the disease was of a milder grade than the typhoid fever of the New England and most of the older States. When judiciously managed it almost invariably termi-

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nated favourably in from fifteen to twenty days. In no instance had he reason to believe that the disease was spread by contagion. In a few cases, when the disease broke out in a family, it affected several, and, in one or two instances, all the members. But in no instance did it appear to spread from any given point in a neighbourhood, among those who visited or attended upon the sick.

In Sparta and its vicinity, in the State of Georgia, an epidemic of a very peculiar character prevailed, during the month of December 1847, and January 1848. The distinguishing feature of the disease, according to E. M. Pendleton (*South. Med. and Surg. Journal*, for April 1848), was extreme pain and swelling, throughout the muscular system. That this was the consequence of inflammation of the tissues, appears evident from the fact that effusion into the cellular texture was a common result. In some instances the muscles of the face were so swollen as to disfigure the countenance completely, and the pain and soreness of the affected muscles were, frequently, so intense as to make the patient cry out on the slightest touch. In most cases there was also, during some portion of the attack, an eruption upon the skin, of a bright red colour, spreading in large blotches, and simulating scarlatina. Invariably, on a close examination, a rash was detected upon these blotches, exactly like urticaria, which no doubt produced the itching with which the eruption was always attended. When this eruption was well marked, and kept out, the disease was generally of a mild character, but when suddenly suppressed some of the more vital organs were liable to become affected.

The different stages of the disease were irregular, and varied as to time. What might be termed the forming stage, lasted, in some instances, ten or twelve days; during which period the patient complained of soreness in the muscles, great weakness, with inertness and depression of spirits, but still was not compelled to go to bed. The next stage was more decidedly febrile, and lasted but a few days, when the case terminated favourably. During this stage, the rash generally made its appearance. The fever was usually of a low form, the pulse not remarkably quick nor full, but weak and laboured, as if the blood had to struggle with some effort through the arteries, which were doubtless compressed by the swollen muscles. When, however, as was the case in several instances, the disease was not so promptly subdued, the rash would suddenly disappear, the pulse become quick and sharp, and the case then

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presented all the phenomena of a pneumonia, or gastro-enteritis. It was in such cases, alone, that the disease assumed any dangerous symptoms. The two cases, remarks Mr. Pendleton, which perplexed me the most, was one which resulted in a troublesome bronchitis, and another in anasarca. Both patients were confined for five or six weeks, and two months subsequent to their attack were able to stir but little, the muscular system seeming to have lost its tone from the violence and long continuance of the disease.

Conjoined with the above symptoms, there was complete prostration of the muscular powers—the patient being unable to turn over in bed, or to move the lower extremities especially. In two cases this was complete. The upper extremities were not so frequently affected. In one case, however, the flexors of the forearm were so much contracted as to draw it into a right angle with the arm; which contraction continued throughout the whole course of the disease, only gradually yielding as the latter subsided. The external disease, with the exception of the eruption, was confined to the muscles. In a case or two seen by Mr. Pendleton, the pain and swelling were extensive about the ankle joint, giving to the disease the appearance of arthritis, but upon a close examination it was evidently muscular, the swelling resulting from an effusion of serum. In this the disease differs essentially from dengue. There were generally two exacerbations of fever, within the 24 hours—succeeded by remissions—one during the day, at its height about 2 P. M., and the other about midnight. The tongue, during the first stage, was covered with a slight, yellowish fur; when, however, the disease became complicated with visceral inflammation, the fur assumed a whitish colour in the centre, the tongue being of a bright red around the edges, or becoming of a brownish colour, with various sized papillæ over its whole surface, according to the seat and extent of the inflammation.

Mr. Pendleton believes that the disease was simply an inflammation, principally of the muscular tissue, produced by exposure to a low, humid atmosphere, impregnated with effluvia from decaying vegetable matter. The inflammation in some cases attacked the surface of the body, producing large, circumscribed, florid blotches, and a prurient rash; while in other cases, it was in one or other of the more vital organs that the inflammation occurred.

The practice pursued by Mr. Pendleton, was gentle cathartics—stimulating diaphoretics, warm ptisans, pediluvia, hot poultices to the abdomen—an equable temperature, &c. In no instance did he

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think it prudent to bleed; but counter irritation, by sinapisms, blisters, &c., he considered of the first importance, when the bronchi, lungs, or intestinal canal suffered to any extent. While he regards the disease as generally mild in its character, he believes it may assume, in many cases, a most fearful and dangerous type.

In almost every portion of the United States, erysipelas appears to have been a very frequent disease, and in some localities it prevailed in an epidemic form, and was attended with a very considerable amount of mortality. In Boston, the number of deaths from erysipelas, during the period between February and December, 1848, both months included, was 19; subsequently, however, to the 1st of January 1849, the deaths from this disease constitute a prominent item in the bills of mortality. In New York, during twelve weeks, between March and August, 1848, the deaths from erysipelas were 130. In different parts of the State of New Jersey, the disease prevailed very extensively. In Pennsylvania, the disease is also noticed as having been unusually prevalent. In Philadelphia, 78 deaths occurred from erysipelas during the year 1848; viz.: during the first 2 months, 8; during the ensuing 3 months, 33; during the next 3 months, 17, and during the remaining 4 months, 20.

The most extensive epidemics of erysipelas prevailed in different portions of the Eastern and Western States. Dr. Bennett, of Fairfield county, Conn., describes a form of erysipelatous fever, which prevailed throughout a large portion of the town of Danbury, from the middle of November 1847, to the close of March 1848. (*N. Y. Journ. of Med.*, May 1848.)

The epidemic was not preceded by any unusual phenomena in the ordinary diseases incident to the autumnal months, with the exception of an anginose affection, which occurred towards the close of several cases of typhoid fever. From the latter part of the month of August to the 1st of November 1847, Dr. B. attended ten well marked cases of the ordinary typhus of New England, in nine of which the anginose affection occurred. In two of these cases the fever appeared to be cut short by the intercurrence of the pharyngeal inflammation, while in another, the only fatal case, death appeared to be the result of the disease of the throat. An inspection of the fauces in this latter case—which occurred in a gentleman 50 years of age—a day or two after the first complaint of soreness of the throat, showed that the pharynx, tonsils, velum, &c., were covered by a thick, muco-purulent layer, upon the removal of which the mucous membrane appeared of a dark red colour, and tumid.

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Soon after, the submaxillary gland of the left side became enormously swollen. In proportion to the intensity of the local affection, the general symptoms became alarming; pulse 130, with some irregularity; respiration hurried; death took place upon the fourth day after the first decided manifestation of the angina. An examination after death exhibited lesions identical with those described by the French writers, as occurring in typhoid fever. The ulcerations of the agminated follicles were numerous and deep—some of them extending to the muscular coat of the intestine. The mesenteric glands were enlarged and softened, their section presenting a dark purple colour. The spleen was enlarged and softened to such a degree, that it could be literally "stirred up with the finger."

Dr. Shipman, it is stated, observed a febrile disease very similar in its symptoms preceding the epidemic, which occurred in the central part of New York.

About the middle of November, 1847, the epidemic may be considered as having commenced in the form of a severe angina. The third case Dr. B. saw, was in a lady 81 years of age, and proved rapidly fatal in consequence of the supervention of bronchitis. A few days after, three cases presented themselves with external erysipelas; one had suffered a week previous from severe sore-throat. In another the erysipelas was preceded, for 36 hours, by chills, fever, and a tenderness of the submaxillary glands. In all these cases the erysipelas occurred upon the face. At the same time, a man about 30 years of age, son-in-law to the old lady mentioned above, was seized in the night with a violent chill, succeeded by acute pains in the limbs, particularly at the knee-joints, rachialgia, headache, and febrile reaction. The febrile symptoms continued for 36 hours, when angina made its appearance. In 24 hours more he complained of intense pain in the left side, afterwards in the right, and died collapsed at the commencement of the seventh day of the disease. A post-mortem examination revealed loose pseudo-membranous adhesions of the right lung to the costal pleura; the latter presented a general redness intermingled with arborizations. There existed a chronic hypertrophy of the left lobe of the liver. The abdominal viscera presented no lesion, excepting a preternatural development, with redness, of the follicular patches of the intestines, for two or three feet above the ileo-cœcal valve, most marked in the neighbourhood of the latter. None were in a state of inflammation. No change was apparent in the spleen, or mesenteric glands.

From the period of the occurrence of these cases, up to the middle

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of March 1848, the disease continued to prevail with nearly equal violence. Since then but few cases have occurred, and the districts in which the epidemic prevailed returned to their ordinary condition in regard to health.

Very great uniformity was remarked in the premonitory symptoms of the disease. These were languor, chilliness, headache, neuralgic pains, in different parts of the body, more especially in the occipital region, and about the temples, succeeded by febrile reaction. The duration of these symptoms varied from 24 hours to several days, or even weeks. The functions of the stomach and bowels were very little affected during the first stage of the disease, excepting in malignant cases. The tongue was slightly coated; some nausea and defective appetite were present; the fecal discharges were nearly normal. In the worst forms of the malady, there was complete anorexia and vomiting the first day; the tongue soon became dry and brown, with dark sordes upon the teeth, and a slight tendency to diarrhœa. The urinary secretion was uniformly very much changed in quality, and deficient in quantity. In one instance it resembled an unsettled decoction of coffee, and immediately threw down a considerable brown deposit. Generally, it was of a brownish-red colour, and, as the patients remarked, very thick. This appearance of the urine was common even in the milder cases. The skin was generally hot and dry, but in some instances, especially in the puerperal cases, it became soon bathed in a profuse perspiration. It rarely presented a jaundiced appearance. The frequency of pulse was one of the most remarkable features of the disease. In some cases it was as high as 120 or 130, during the first 48 hours, the patient at the time sitting in a chair, and, perhaps, considering himself but little indisposed. It was small and easily compressible, indicating more a pulse of irritation than of inflammation. Sooner or later, inflammation of the different tissues was developed. Upon the localities of this inflammation depended, in a great measure, the issue of the case. A very constant, and Dr. Bennett is disposed to think, a uniform seat of inflammation in this epidemic was the throat. Even when the patient did not complain of any symptom of angina, upon inspection of the throat more or less discoloration of the mucous membrane of the posterior fauces was always perceptible. Some patients presented a general, deep red colour of this part, without ulceration. The redness was, occasionally, in patches, giving to the throat a mottled appearance. In the majority of cases, the deep red colour of the mucous surface of the fauces became soon

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changed by a sparse, purulent secretion, giving to it a yellowish cast, intermingled with red. In a few instances, the pharynx was completely covered with a layer of pus, so thick as to obscure entirely the redness of the part. In other cases the angina commenced with small, circular ulcers, and sometimes pustules, upon the tonsils and pharynx, evidently of follicular origin; the redness of the mucous membrane was in such cases less marked, or nearly wanting. Very rarely, the whole throat was unusually pale, tumid, and semi-transparent, as though œdematous. In every case there was more or less tenderness and swelling of either the submaxillary, parotid, or lymphatic glands of the neck, as well as of the tonsils, and the uvula was almost as invariably elongated; but Dr. B. did not observe, more than once or twice, the drop upon its point, which Dr. Peebles notices as characteristic of the disease as it occurred in Virginia.

The erysipelatous efflorescence occurred in one-sixth of the cases. When it occupied the face it was of a livid colour, and was soon covered with large, irregular bullæ, filled with serum of a slight yellow tinge. The inflammation involved both the dermoid and subcutaneous cellular tissues. Small abscesses occurred in various parts, more especially about the eyes, in the substance of the palpebræ. In one case, a circular, gangrenous eschar was formed at the internal angle of each eye, in the superior eyelid. In two instances, the erysipelas of the face was of an œdematous character, and occupied only the parts bordering upon the eyes.

While the erysipelatous efflorescence of the surface was progressing, the patients complained but little of the disease of the throat —which nevertheless still continued. When the case proceeded to a favourable termination, an abundant desquamation took place from the diseased cutaneous surfaces.

In some instances, which commenced with the usual anginose symptoms, no external efflorescence occurred, but the cellular tissues in the axilla, and beneath the pectoral muscle, became the seat of inflammation, and enormous abscesses were the result. An old lady, 65 years of age, who had been labouring for a few days under general febrile symptoms of little violence, complained of pain in the right forearm. It was somewhat swollen, but not discoloured. In 18 hours the arm was gangrenous from the wrist to the shoulder; death soon ensued. The rapidity of the gangrenous termination in this case is, Dr. Bennett remarks, unparalleled in the history of the epidemic as it occurred in Danbury, but was not the only instance of such termination.

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Tables are presented of 72 cases, showing the age and sex of the patients, the local manifestations and duration of the disease in 14 which proved fatal, and the local manifestations of disease in 59 which terminated favourably. The ages of the patients included in the first table, varied from 17 to 81 years; 7 were males and 7 females. The duration of the disease was from 2 to 20 days. The ages of the patients included in the second table, varied from 8 to 75 years, and the duration of the disease from 3 days to as many months; the milder cases of angina occupying the one extreme, and the cases of pectoral abscess the other.

From these tables, it appears that the serous membranes were a frequent seat of the disease, especially the pleura and peritoneum. Three cases of puerperal peritonitis are included in the list. One other case, Dr. Bennett states, occurred in a woman whom he attended in her accouchement; the patient fell into the hands of an empiric, and died. These four, Dr. B. remarks, are the only puerperal cases occurring among twenty-one females confined during the epidemic, all of which I attended. He adds, "as the relative proportion of similar cases has not been given, in the accounts of other epidemics of the same character, I have no means of knowing whether the number in Danbury is comparatively greater or less. Let this be as it may, it does not, to my mind, speak very strongly in favour of the doctrine of contagion from the hands and clothes of the practitioner." Dr. Bennett adds further, that "there was a very manifest difference between the symptoms in the cases of *puerperal* peritonitis, and those which occurred independent of this condition. In the former, there was much less abdominal pain and tenderness, little vomiting or diarrhœa, an extremely rapid pulse—130 to 160—and a very intense frontal pain, from the commencement of the attack; while in the latter, the pain in the abdomen was severe, with constant vomiting and diarrhœa, tympanitis, cold extremities, a small, frequent pulse, and death within from 48 to 72 hours after the first symptoms of serous or muco-serous inflammation. I am disposed to consider the inflammation in these cases as involving both the mucous and serous membranes, for they seemed to combine the symptoms of peritonitis with those of cholera morbus."

Dr. Bennett has no doubt that typhoid fever, accompanied uniformly with anginose symptoms, was the foreshadowing of the erysipelatous epidemic in Connecticut, but what were the anti-hygienic influences in operation he professes himself unable to surmise. The season presented nothing unusual—no extraordinary atmospheric

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phenomena, and no tangible evidences of morbific effluvia. According to Dr. B., the evidence was strongly in favour of the contagiousness of the disease described by him. The first case which occurred was that of a gentleman, at whose house the old lady was visiting, who died a few days after. The next fatal case was that of her son-in-law, who was in constant attendance upon her during her illness. Three other cases, all of the anginose form, occurred in the same family immediately after. An old gentleman of 72 years, died of erysipelas, and three of his children contracted the disease. These cases were also of the anginose character, and two of them very severe. Two ladies, from a healthy district, went some distance to watch with an acquaintance suffering from erysipelas of the face; upon the third day after returning home they were both seized with the usual symptoms of the epidemic. A gentleman, who died with gangrene of the leg, was attended by the members of a society to which he belonged; one of these, from a perfectly healthy district, and two from an infected locality, were soon after seized with the disease. He, nevertheless, adds, that large numbers of those who attended upon the sick escaped an attack. In regard to treatment, this was conducted by Dr. Bennett on general principles, and according to the circumstances of each case. In the anginose form of the disease, unaccompanied with any other local inflammation, he gave, in the first place, an ordinary emetic solution of tartar emetic every half hour until emesis was produced, and at the same time a strong decoction of eupatorium, to be drunk freely during the intervals of taking the antimonial solution. Given in this manner, these remedies scarcely ever failed to produce an emetico-cathartic effect, and to afford at least temporary relief. Blisters were next applied upon the neck. These often acted like a charm in relieving the excessive soreness of the throat. Frequently, also, a strong solution of nitrate of silver was applied directly to the inflamed surfaces. In cases where there was a continuance of fever after the abatement of the disease of the throat, an infusion of bark was freely administered, and with evident advantage. Of the simple anginose cases Dr. B. lost none. In the more malignant form of the disease, accompanied with an erysipelatous eruption and diffuse cellular inflammation, he depended mainly upon bark with infusion of serpentaria, and mild laxatives, during the first stages; and afterwards, upon the more powerful stimulants, such as ammonia, wine, brandy, &c. In cases attended with inflammation of the serous membranes, Dr. B. administered calomel and opium largely, but without success, excepting in one

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case of puerperal peritonitis. From no local application to the external erysipelatous inflammation, with the exception of cooling lotions to allay the heat and smarting, was any benefit derived. In a case of glandular engorgement of the neck, which was resolved, bark was administered internally, and a blister applied to the tumour, which was subsequently rubbed freely with ungt. iod. pot.

It is important to remark the fact pointed out by Dr. Bennett, in reference to the common occurrence of peritoneal inflammation in the individuals affected with the epidemic erysipelatous fever, described by him. Four out of twenty-one parturient females being attacked with this form of the disease. The close relationship between epidemic puerperal fever and erysipelas has been noticed by a number of pathologists within a few years past, and it has certainly been established by incontestable facts that the two diseases almost invariably prevail simultaneously in the same localities or communities. The bills of mortality for the past twelve months, so far as we have been able to obtain them, exhibit this in a very striking manner. In Boston, where puerperal fever is not specially enumerated in the bills of mortality, we have no means of comparing the relation of that disease with erysipelas, from the deaths produced by each. The number reported as having died from erysipelas, from the beginning of February 1848 to the 1st of February 1849, was 23; while, during the same period, 68 deaths are reported to have taken place in childbed.

In New York, during twelve weeks, from March to August, 1848, 74 deaths occurred from erysipelas, and 84 from puerperal fever.

In Philadelphia, during the year 1848, 78 deaths took place from erysipelas, and 43 from puerperal fever.

The following table exhibits the mortality in Philadelphia, for a series of years, from erysipelas, puerperal fever, scarlatina, and measles; between the prevalence of which diseases, there would appear to be some relation not yet explained.

	Erysipelas.	Puerperal Fever.	Scarlatina.	Measles.
1836	22	22	223	3
1837	20	12	196	52
1838	22	19	133	123
1839	19	18	224	3
1840	6	27	233	2
1841	28	25	84	114
1842	35	43	209	23
1843	50	40	396	3

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	Erysipelas.	Puerperal Fever.	Scarlatina.	Measles.
1844	23	19	269	2
1845	49	42	199	90
1846	36.	33	228	5
1847	46	33	337	78
1848	78	43	72	100

In the *Southern Medical and Surgical Journal*, for April 1848, is an extract of a letter from Dr. Jones, of Irvinton, Georgia, dated February 1848, which speaks of an epidemic pneumonia then prevailing in that, and the counties further west. It was confined to the districts and water courses where intermittent fever is most prevalent during the autumn. The attack was sudden, with great prostration of strength, and a rapid, feeble, and irregular pulse. The rusty sputa appeared in a few hours. It would not bear general depletion; large doses of quinine gave almost certain relief.

Most of the febrile exanthemata prevailed very extensively in the different portions of the United States. The small-pox, which was almost invariably introduced from foreign sources into all of our large seaports and commercial cities, prevailed at Boston and its neighbourhood, but not to a very great extent, or in a very severe form. In the city, only 21 deaths are reported from the disease, from the beginning of February to the 31st of December.

In New York, the disease prevailed much more extensively, and in a much more severe form; in twelve weeks it caused 175 deaths. The entire number of deaths from small-pox, during the year 1848, was 544.

In Philadelphia, from January to April, inclusive, but one death from small-pox is reported; during the three months ensuing, 10 deaths; and during the remaining five months, 91 deaths.

In several parts of the interior of Pennsylvania, small-pox prevailed during the past winter to a great extent, and attended with a fearful mortality.

In various parts of New Jersey, the disease also prevailed to a greater or less extent, and produced a considerable amount of mortality.

In February, we have accounts of the prevalence of the disease in the State of Maine, and at Utica, in New York; in April, at Cape Cod; in September, at Fort Child's, in upper Missouri; in October, at the city of Washington; in December, at Brattleboro, in Vermont; at Whitehall, New York; and at St. Louis, in Missouri; and during

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the whole year at Hartford, Connecticut. In most portions of the United States the disease has, in fact, made its appearance; but in regard to the amount of mortality produced by it, we have no means of judging.

In several sections of the United States, scarlatina prevailed during the year, in many assuming a most malignant form. In Boston, deaths from the disease are reported in every month of the year. In November, the disease prevailed to a very great extent, and continued to produce a very considerable number of deaths during the ensuing five months. The entire number of deaths from scarlet fever in Boston, from the first of February to the end of December 1848, was 175; and from January 1, 1849, to April 1, 204.

In January and February, 1849, the disease prevailed extensively in various portions of the Eastern States.

In New York, a number of deaths from scarlet fever are reported in the early part of 1848; it disappeared during the summer, but again made its appearance as an extensive and severe epidemic in December.

In Philadelphia, the mortality from scarlet fever was much less, during 1848, than during any one of the twelve preceding years, 72 deaths only being reported. The average annual mortality from this disease, for the preceding 12 years, was 227.

In New Orleans, 110 deaths from scarlet fever occurred previously to the 19th of August; between that date and October 21st, no death from the disease is recorded.

During the months of March and April, 1848, the disease appeared in a very severe form at Lawrenceburgh, Tennessee. In many instances, the patients died within 22 or 24 hours. In the fatal cases, the brain was the organ which seemed principally to suffer.

The measles occurred in different portions of the United States—often to a very great extent, but so far as we can learn in a comparatively mild form and productive of no considerable mortality. In Boston, a few deaths from the disease are noticed in every month, from April to December inclusive, with the exception of August. The whole number for the eight months being 14. In January 1849, 8 deaths from measles are reported; 36 in February; 19 in March, and 73 in April.

In New York, the measles appear to have prevailed somewhat extensively during the three spring months. During the summer months, not a death from the disease is reported.

In Philadelphia, during the first two months of 1848, 12 deaths

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took place from measles; during the ensuing four months, 75; and during the remaining six months, 13. Total 100.

During the spring of 1848, the disease occurred in many of the southern States. In the *Southern Med. and Surg. Journ.* for April 1848, the editor remarks, "That from all sections of the State of Georgia, and from several of the adjoining ones, we learn the prevalence of measles. Its character in this city (Augusta), thus far, is mild."

The most widely extended epidemic of the past year was unquestionably that of dysentery. As early as the month of May, affections of the bowels, of a very severe and obstinate character, became prevalent in many parts of the country. In Boston, where bowel complaints and dysentery appear throughout the year, the deaths from these two sources, from the month of February to April inclusive, were 37; in May, 19; in June, 21; in July, 85; in August, 295; in September, 162; in October, 95; from which period they began rapidly to decline. The deaths from dysentery alone, were, in February, 9; March, 3; April, 10; May, 13; June, 7; July, 20; August, 73; October, 48.

In the city of New York, the disease appears to have prevailed pretty extensively between the months of March and August, 1848; 150 deaths from it being reported within this period. The greatest number of deaths from dysentery occurred during the months of July and August; the entire number of deaths from this disease during the year 1848, was 739.

In Philadelphia, the dysentery became prevalent during the month of June, and continued to occur until the close of the year. The greatest number of deaths from this disease, during the period referred to, was in August, viz., 77; the smallest number, viz., 10, was in December; the entire number of deaths from June to December, inclusive, 278. The deaths from diarrhœa, during the same period, amounted to 104.

During the prevalence of the dysentery in Philadelphia, bowel complaints of every description were unusually prevalent. Diarrhœa was liable to be induced from causes, which, at other seasons, and in other years, would scarcely be productive of the least disturbance of the bowels, and it would frequently attack persons without any apparent exciting cause. The dysentery, in many cases, commenced as a simple diarrhœa, followed, in a few hours, by severe tormina, tenesmus, and repeated small discharges of bloody mucus. In

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many instances, particularly in adults, the disease was attended with a jaundiced appearance, to a greater or less extent, of the surface; these bilious cases, as they were termed, were accompanied with great irritability of the stomach, distressing nausea, repeated vomiting, frontal headache, pain in the lumbar region, and smart, febrile symptoms of a decidedly remitttent type. Upon the whole, however, the disease, as it occurred in Philadelphia, was comparatively mild; considering the number attacked, the amount of mortality produced by it was small. In the small towns and villages in the neighbourhood of the city, the disease assumed a much more severe form, and terminated fatally in a greater number of cases, death occurring often within a few hours from the commencement of the attack.

Preceding the appearance of dysentery in Philadelphia, and its vicinity, the season was chilly and wet. During the three spring months, it snowed or rained on 33 days; the melted snow and rain amounted to 9.199 inch.

The month of June was one of unusual warmth—there were a number of seasonable showers—vegetation of every kind was most luxuriant. The mean temperature of the month was 73°. Rain fell on 9 days, measuring 4.433 inches. In the month of July, a few sultry days were succeeded by refreshing showers, which cooled the atmosphere, and rendered the weather agreeable. The mean temperature of the month was 74⅓. Rain fell on 9 days, and snow on 1, making a total of 2.30 inches water. The month of August was dry and warm, its mean temperature being 75°. Slight showers of rain fell on 7 days, measuring 1.714 inch.

From April to August, the dysentery was prevalent to an unusual extent in the North. In Clinton County, N. Y., bowel complaints generally prevailed, and dysentery of a severe and obstinate character, attended with a sunken, anxious expression of countenance, a jerking pulse, great prostration of strength, severe tenesmus, frequent discharges of blood or bloody mucus, and steady pain in the loins. Convalescence was slow and tedious. The disease, we are told, was confined to those situations where daily changes from heat to cold are the greatest—that is, deep valleys, where reflection from the surrounding hills produces a high temperature during the day, and evaporation from ponds and streams, a low one at night. The thermometer in such situations, showing a change of seldom less than 17°, and often 28°, and 30°, in the twenty-four hours. The disease in some neighbourhoods was very fatal. In one, out of 20 or 30 attacked by it, 16 died; all children under 14 years of age.

In Jonesville, Indiana, the dysentery made its appearance, com-

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plicated with bilious derangement, about the 1st of June. Dr. Casselberry, remarks, that in consequence of the great freshet of the preceding winter, large deposits of decayed vegetable matter were formed, on most of the bottom lands of Indiana. By the combined action of heat and moisture, a further decomposition of these deposits was produced, causing the exhalation of a peculiar effluvium, offensive to the smell. The summer was unusually wet. The days were warm and the nights cool. Fruits more than ordinarily abundant and excellent. Foliage and vegetation most luxuriant.

In August, bowel complaints generally, including dysentery, were extensively prevalent throughout Maine and the New England States. Dysentery continued as an epidemic in most of the North and Eastern portions of the Union, to near the close of the year; and the mortality from affections of the bowels is described as having been unusually severe. As late as November, the disease prevailed to an alarming extent at New Haven.

The editor of the *Buffalo Medical Journal*, in October 1848, remarks, that, from various quarters, he learns, that the dysentery, in an epidemic and malignant form, was, at that period, extensively prevalent. It has, he adds, prevailed of late, to some extent, in Buffalo and its vicinity, but in the majority of instances it has been mild, and easily managed.

In one or more sections of the United States, cerebro-spinal meningitis made its appearance as an epidemic. The only detailed account of either of these epidemics, is that contained in the very able paper of Dr. Ames, on the disease as it prevailed in Montgomery, Alabama. The epidemic commenced early in February, was most prevalent in March, and disappeared towards the latter part of April. After the 1st of May, three cases of cerebro-spinal meningitis occurred, but at intervals of some weeks. Epidemic roseola preceded and accompanied the former, and disappeared with it. Diarrhœa, dysentery, intermittent and remittent fever; various forms of neuralgia, spasmodic cephalalgia, catarrhal fever, and bronchitis, diseases common to the climate and locality, prevailed at the same time, some of them to a very unusual extent for the season. The temperature of the season was moderate—the medium heat being 63°. The prevailing winds were principally S. and S. W. On the morning of March 6th and 7th there was frost. It rained on 25 days. About 250 cases of the disease occurred. Of 85 cases, registered by Drs. Ames and McLester, 22 occurred in whites and 63 in blacks. Of the whole number, 33 of the patients

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were under 20 years of age, and 52 over; 46 were males and 39 females. The name, cerebro-spinal meningitis, Dr. Ames considers not to be strictly applicable to the disease as it occurred epidemically in the town of Montgomery. Whatever, he remarks, may have been the extent of the organic lesions in the milder forms it frequently assumed, the symptoms, as well as the morbid anatomy, of the malignant forms, showed that the substance of the brain, if not of both the nervous centres, was almost invariably involved; indicated by increased vascularity of the substance of the organ, and softening to a greater or less extent.

The disease was generally preceded by pain in some part of the head, generally continuous, but occasionally remittent or intermittent, with or without regular periods. In some cases there was also some pain along the course of the spinal column, particularly in the neck; soreness in the muscles or joints; facial neuralgia; and in a few giddiness, with or without dimness of vision. The strength was but slightly impaired, and there was but little complaint of general malaise. Generally, the appetite was but little affected—occasionally, however, it was diminished or lost. The premonitory stage continued from twelve or twenty-four hours to several days. The length of this stage afforded no indication of the severity of the approaching stage. The attack usually took place between 12 M. and 12 P. M., and was usually ushered in by some degree of chilliness, never amounting to rigor. The chill was quickly succeeded by decided febrile reaction, and a state of stupor more or less profound, with a cool skin and feeble pulse, or the same condition of skin and pulse, without stupor. The attack was occasionally marked by the sudden occurrence of deep coma, or of a less degree of stupor, accompanied by a sense of extreme debility, giddiness, dimness of vision or double vision, or by a sudden or gradual aggravation of the premonitory headache, the first attended by various changes in the condition of the pulse and skin, the second by no such changes. In general, the skin was at first dry, but occasionally it was moist, with or without an increase or depression of the natural temperature. Often the dryness of skin persisted throughout the attack. Commonly, however, in the progress of the disease, the state of the skin varied in regard to dryness and moisture on the same or different days, without regularity or any apparent dependence on the action of the heart. Its temperature was usually less changeable—when a change did occur, it seemed to follow an increase in the activity of the pulse. The heat of the surface, when

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present, seldom rose to that usual in fevers—it was not pungent, nor unequal at different parts of the surface. In some instances the skin was abnormally sensitive to the touch. The face was flushed, and the skin clear in some cases, in others, the face was pale and the skin sallow. The lips were always deeply coloured. The pulse was generally at first slower, smaller, and softer than in health, and very irregular in the force, interval, and number of its beats. The tongue was, in the more grave forms of the disease, broad and flabby, filling up the mouth so as sometimes to impede articulation, and indented on its edge by pressure against the teeth. A short time before death the thickening and elongation were apt to increase. The tongue was more or less coated with a pale ash, white or yellowish fur. The saliva was abundant, thick, and viscid. In other cases, the tongue, though broad, was not thickened or indented at its edges; and the coating never occupied more than three-quarters of the dorsum; the uncovered portions having a bright pink colour. As the disease advanced towards a fatal termination, it was not uncommon for the latter condition of the tongue to change into that of the former. The tongue seldom became dry.

Cephalalgia was absent in only one case. It occupied in some patients the temples, superciliary ridges, and frontal region; in others, the back of the head only; in the larger number it was felt over the whole head, but was most violent in one of the regions just mentioned, or beneath the parietal bones. Its intensity bore no proportion to the severity of the other symptoms. It was seldom continuous with the attack; disappearing at some period between the first and fourth days, to return, generally, after an uncertain interval. It was generally aggravated by an erect or semi-erect posture, and often by pressure on some part of the spinal column, chiefly the cervical. Giddiness was rarely complained of after the first few hours of the attack. It was an unfrequent and unimportant symptom.

The conjunctiva were generally injected; the eyes glittering and watery. The pupils were usually either contracted or natural; in a few cases they were dilated. In the greater number of cases there was no increased sensibility to light. The eyes were insensible to light from coma, in three, and in two, without loss of consciousness.

Some degree of stupor, amounting often to profound coma, was present in many cases on the first, second, or third day of the attack. It generally passed off within twenty-four hours, but sometimes not for two or three days, generally to return within a few hours, or

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after several days. In some cases, which were speedily fatal, it was continuous. In many cases, delirium, with or without stupor, occurred at some period of the attack; it sometimes lasted but three or four hours, rarely over twenty-four. It was in very few instances wild or furious. The mind was generally desponding and apprehensive; even during the delirium fears would frequently be expressed in regard to the result of the attack. In all the more violent cases, whether attended or not with delirium or stupor, there was forgetfulness of the events which transpired during the attack.

Tonic contraction of the muscles on the back of the neck, causing a retraction of the head, more or less permanent, was observed in a number of cases. In a few, tonic contraction of the extensors of the entire spine was present, and in a few others, the contraction was confined to the sterno-mastoid muscles of one or both sides. In other cases, the muscles of the neck were simply affected with stiffness and soreness. Tonic contraction of the flexors of the forearm, and the recti muscles of the abdomen was present in several cases, and tremors of the muscles of the face and hands in others. Strabismus, preceded or followed by convulsions, was occasionally observed. General soreness of the muscles was present in a few instances. Some degree of pain in the spine was a common symptom. Pressure on the cervical and dorsal vertebræ caused pain, often violent, and of some continuance, in the head and top of the sternum, or at the middle of the sternum, epigastrium, or umbilicus, according as it was made higher or lower. Even during a state of deep coma, pressure on the upper dorsal vertebræ caused great restlessness and apparent distress. Vomiting or nausea was occasionally observed. The bowels were ordinarily either natural or constipated. Pain or tenderness of the abdomen was an unfrequent symptom. A morbid desire for food was expressed in eight cases; in some, on the first or second day; in others—protracted cases—on the eighth or ninth. The respiration was usually regular, and in five cases, only, fell below 21 in the minute; it sometimes rose as high as from 52 to 56 in the minute on the first or second day. The expression of the countenance was exceedingly various and variable, and afforded little or nothing available in diagnosis, or prognosis. In the greater number of cases no emaciation took place.

The duration of the disease was variable—the extremes were 15 hours and 50 days. The majority of cases terminated on or previously to the fourth day.

In regard to the forms of the disease, Dr. Ames applies the term

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congestive to one class of cases, and that of inflammatory to another. The former comprising a little more than one-half. The distinguishing features of these two classes, which, he remarks, are very accurately represented by their names, were always well-marked in the beginning, and generally, also, through the course of the attack, even when most protracted. Of the congestive class he makes two divisions—the mild and malignant.

The leading symptoms of the mild form of the congestive class, were, the constant presence of a cool skin, a small and feeble pulse; broad and swollen tongue. The malignant form was distinguished by the frequent occurrence of chilliness in the forming stage; great diminution of strength; the occurrence, generally, on the first day, of considerable stupor or coma; delirium, or stupor with delirium; strong contraction of the muscles of the neck, with embarrassment in the movement of the muscles of other parts; the wide range in the frequency of the pulse, and its changeable character; the increased quantity and viscidity of the saliva; the thicker coating of the tongue, and an occasional tendency to assume the symptoms of the inflammatory class.

The inflammatory class of cases, Dr. Ames divides into the mild, the grave, and the malignant. The former were marked by the absence of a cold stage, by a uniform presence of an increased temperature of the surface; slight diminution of strength; a full and generally firm pulse; a less evident swelling and slighter coating of the tongue; and the absence of coma, drowsiness, and delirium. The grave were distinguished by the regularity of the pulse, which was never, except during a remission, below 100 in the minute; by the morbid contraction of the muscles, confined to those of the neck; by the occasional presence of a painful sensibility of the surface to the touch, and of the retina to light; the occurrence of regular remissions, and the absence of coma and of delirium. The malignant cases were marked by the early occurrence of delirium, generally, or of coma; great irregularity of pulse; abnormal contraction of the large muscles besides those of the neck; strabismus; the occasional occurrence of amaurosis, and a tendency to vomiting and to a speedy and fatal termination.

Complications.—Inflammation of the fauces was observed in seven patients, five of whom had recently recovered from roseola; two had roseola with the meningitis. The latter was also complicated with bronchitis in three cases, and with pneumonia in two. Whether the disease of the intestinal mucous membrane, and of the mesenteric

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glands, observed, the first in every, and the second in four-fifths of the post-mortem examinations, are to be considered as accidental lesions, or as an essential feature of the epidemic, we have not the means of determining.

The mortality was confined to the malignant forms of the disease. Among these, the ratio, from the best information Dr. Ames could collect, he sets down at about 60 per cent.

During the month of March, 1849, a very severe epidemic of cerebro-spinal meningitis prevailed to some extent in the towns of Sutton and Millbury, Massachusetts. The following account of the epidemic is derived from a communication by Dr. Stone, of Auburn, published in the *Boston Med. and Surg. Journ.*, vol. xl. page 201.

The first case was that of a boy, 10 years of age, in Sutton. He was suddenly attacked with entire prostration of reason, delirium, intense pain, spasms, great coldness of the extremities and whole body, and collapse of the vital energies. After a somewhat perfect reaction had taken place, petechiæ, or a mottled state of the skin, made their appearance. This led to the conclusion that the disease was a more aggravated form of typhus, or the spotted fever that had ravaged different portions of New England, in 1810 and subsequent years. But other fatal cases occurring in rapid succession, led to the suspicion that the disease was one of even a still more alarming and deadly character.

The prevailing features of the epidemic, we are told, coincided strikingly with those of the epidemics of cerebro-spinal meningitis, which have prevailed so extensively in France, Ireland, and other portions of Europe. The majority of those attacked were boys, but a much greater proportion of male and female adults fell victims to the disease than was the case in the epidemics of Europe. One case, in a boy, five years old, terminated in the short space of ten hours from the commencement of the attack.

With but one or two exceptions, the patients were attacked suddenly, in apparently good health, without any premonitory symptoms, with extreme prostration, loss of reason, rigors, extreme coldness of the extremities, deficient heat, with a livid hue of the surface, a small and thready pulse, severe pain, and spasms, especially of the neck, attended with rigidity. The state of delirium and restlessness was, in most cases, so violent, as to require from four to six attendants to restrain the patients. In cases where death did not take place within three or four days, a more or less perfect reaction took place. The pulse became irregular, small, tremulous, and intermit-

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ting; the pupils dilated or contracted according as they were excluded from or exposed to the light; the delirium gave place to coma; the powers of speech and deglutition failed; the teeth became covered with a foul sordes; the breath offensive; typhoid symptoms more or less severe took place, and death soon closed the scene.

The disease, in general, ran its course in a very short period. Death in some cases occurred within 10, 12, or 13 hours; in others within 24 or 36 hours; in one instance the disease was protracted to 14 days.

Fourteen cases occurred in rapid succession, before any *post-mortem* examination could be obtained. Finally, an examination was made, in a case which occurred in a male adult, and terminated on the 13th day; a longer duration of the disease than in any of the previous cases. The symptoms, at times, were so far mitigated as to afford hopes that convalescence would be permanently established; but the delusive intermissions were of short duration. The same thing was manifested in other cases. Upon examination, the vessels of the arachnoid were found to be engorged with dark blood, and the entire membrane covered with a thick purulent matter. Sero-purulent matter was found in the ventricles, and at the base of the brain. The medulla oblongata and spinal cord partook of the same lesions. No lesion was found in the lungs, thorax, or abdominal viscera. The result of the post-mortem examination in this case showed, most conclusively, that the disease was the same as the epidemic cerebro-spinal meningitis described by the European writers. As all the other cases—although not subjected to a post-mortem examination, resembled the foregoing in all their distinctive features, there can be little doubt that they were similar in character.

The case of the boy, five years of age, which terminated within the short space of ten hours, although the most quickly fatal, did not commence with symptoms of so much violence as either of the others: delirium did not come on until within three or four hours before death. The child was sent to town in the morning, to be measured for a garment. It was then noticed that he appeared to be very cold and shivering, and so debilitated that assistance was necessary to extend his arm before the measurement could be finished. The child, during all this time, made no complaint, and the lady who measured him was, from this circumstance, more than half inclined to suspect that the severe rigors, and the indications of coldness and debility he manifested, were assumed. The child went home himself, when all his symptoms became more and more intense, and death

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took place at 6 o'clock on the same evening. All the remedial measures resorted to were without the slightest beneficial effect; reaction never took place. The disease, in this case, ran its course in so short a time, that much lesion was not to be expected. No purulent matter was found in any part of the brain or spinal canal. There was great vascularity of the arachnoid membrane. The substance of the spinal cord, instead of being indurated, as it was in the former case, was softened almost to a pulp. All the other viscera were free from any trace of disease.

Every case of the disease, amounting to 19 or 20, has, Dr. Stone remarks, thus far (March 30th), proved fatal. No plan of treatment has as yet been attended with any success, either in arresting its progress or modifying its character.

In the month of June the putrid sore throat prevailed in Hampshire County, Virginia; but of the extent and character of the epidemic, or the particular circumstances under which it occurred, we have no accurate accounts.

Early in the spring of 1848, in the neighbourhood of Lambertville, N. J., a disease prevailed to some extent, of rather a singular character. It was supposed, says Dr. Lilly, from whose paper in the *New Jersey Medical Reporter*, we obtain our information, to depend upon an inflammation of the muscular coat of the large intestines, complicated with hepatic derangement. It was attended with violent pain of the hypogastric and iliac regions, obstinate costiveness, a furred tongue, and a moderate degree of fever. The evacuations from the bowels, which were procured with great difficulty, were extremely dark and tenacious, presenting almost the appearance of tar. The pain, which was of a spasmodic character, was relieved by free purging with mercury, and its preparations, and opium and camphor. These were followed by alterative doses of calomel, and where tenderness was detected, counter-irritation by means of sinapisms.

New Orleans was again visited by the yellow fever during the summer and autumn of last year, but to a much less extent than in 1847.

Dr. Hester states (*New Orleans Med. and Surg. Journ.*) that during the month of May, the health of the city was, as usual at that season of the year, excellent. But little rain fell, and the atmosphere was agreeably dry and balmy. Towards the close of the month, and the beginning of June, rain began to fall almost daily,

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and continued beyond the middle of the latter month, and at the same time there was a considerable increase of temperature. Diseases, which previously to this period had assumed the forms of mild intermittents and remittents, gradually ran into or wore the livery of malignancy, and became difficult to manage. Instead of simple, open, and frank attacks of febrile disease, easily controlled by mild laxatives, followed by the sulphate of quinine, the physician had to combat pernicious forms of these affections, attended with symptoms of congestion, local determinations, gastric irritability, and, in some cases, all the external phenomena of the epidemic fevers of the south.

As early as the 10th of June, Dr. H. saw a case at the Charity Hospital, in a German just arrived from Havre, bearing all the usual external symptoms, save the black vomit, that characterize the yellow fever. The patient was seized with a chill on entering the river, and eight days afterwards was sent to the hospital. It was at this time Dr. H. saw him. His skin and eyes presented the usual deep icteroid hue, there was also raging delirium, &c. The house-surgeon assured Dr. H. that other cases, similar to the above, had been recently received into the institution. By those, we are told, who watch the progress of disease in New Orleans, and especially at the Charity Hospital, during the summer, such cases are considered as foreshadowing the coming of the yellow fever. Two or three cases of this disease had already been imported from Vera Cruz; but in no instance, so far as Dr. H. has learned, had the disease extended to any other person. During the month of June, cases of small-pox became very numerous throughout the city. For the week ending June 4th, five deaths from this disease were reported, and for the week ending the 11th, ten deaths.

During the months of July and August it rained almost daily. From the 1st of June to the 18th of August the quantity that fell amounted to 46.903 inches—being 15.335 inches more than fell during the same period of 1847, when the yellow fever raged with great violence. During the week ending June 17th, 1848, one case —not authentic—was reported to the Board of Health—during the ensuing week, 2 cases from Mexico were reported; during the next week, 1 case; during the next, 5 cases; during the next, 6 cases —4 from Vera Cruz—during the next, 6 cases; during the next, 16 cases—some imported; during the next, 12 cases; during the next, 26 cases; during the next, 38 cases; and during the next week, ending August 25th, 96 cases. Up to this period, Dr.

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Hester remarks, that the type of the disease was unusually mild—in many instances it was so slight as to require but a few hours confinement, and little medicine. In some cases, however, it was characterized by the most violent symptoms, such as hemorrhage, black vomit, &c. The disease may be said to have been, at this time, endemic in the Charity Hospital, it being there the prevailing fever. Sporadic cases existed in almost every part of the city, and in the surrounding places. It was confined chiefly to the poor and exposed portion of the population. Although cases were imported into the city from Mexico almost daily, yet, Dr. Hester states, in no instance was it communicated from these to the residents. The whole number of deaths, from yellow fever, up to the 14th of October, was 716, more than one-half of which took place in the public hospital.

From the mild and tractable character of the disease, and comparatively few attacked by it up to the close of August, the Board of Health declared that it had not assumed an epidemic character, and on the 2d of October they announced that no fear of yellow fever need be apprehended by the unacclimated for that season. A few deaths from the disease still continued to occur, chiefly old and neglected cases, relapses, &c.

As the yellow fever began to decline, the usual autumnal diseases, as intermittents and remittents began to appear; and the occurrence of some cases of typhoid fever, diarrhœa, and dysentery is also noticed.

During the prevalence of the yellow fever, Dr. Hester states that another affection called the *dengue*, also made its appearance in New Orleans. In its onset, this affection resembled, in many of its features, the yellow fever. It was ushered in by slight chilliness, a sense of malaise, pains in all the joints, limbs, muscles, eyes, head, back, &c. In some cases these pains were described as much more severe than those usually met with in yellow fever. The two diseases were sometimes confounded, or the one succeeded the other. Previous attacks of fever did not exempt persons from an attack of the dengue. Few, if any cases, it is believed, proved fatal. The affection, says Dr. Hester, passed off in a few hours, or at most a few days, when opposed by mild cathartics, tepid drinks, pediluvia, and the sulphate of quinine. It disappeared with the yellow fever.

During the last two or three weeks of October, it is stated that the number of deaths from tetanus and trismus increased greatly. The disease prevailed in every part of the city, and in the hospitals, both private and public. The slightest wound, especially in the foot or hand, was liable to be followed by tetanic symptoms.

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With this exception, the sanitary condition of New Orleans continued excellent, notwithstanding the rapid and great accession to the population of the city, after the setting in of the autumn. To the close of the year there occurred fewer cases of measles, scarlitina, and small-pox, than is usual during the same season.

On the 12th day of December, the first case of cholera made its appearance. About the 22d of the same month, the Board of Health declared the disease to be epidemic, and on the 6th of January, the same body pronounced it to be no longer epidemic; it nevertheless continued to prevail up to a late period in January; the daily number of deaths being, subsequent to its decline, an average of about twelve. The greatest number of deaths for the twenty-four hours was 114, of which 92 were from cholera (Dec. 28).

On the 30th of August, the Health Officer of New York, Dr. Alexander B. Whiting, announced to the Board of Health of that city, that a disease was prevalent in the vicinity of the quarantine grounds, on Staten Island, which he regarded as yellow fever.

We have been able to collect no certain information in relation to the nature and origin of this affection, beyond what is contained in the following extracts from Dr. Whiting's communication to the Mayor of New York; and from the report of a special committee of the Board of Health.

"I deem it my duty," he remarks, "to inform you that there exists at this place (Quarantine Station), and in the villages of Tomkinsville, and Stapleton, adjoining the quarantine grounds, a disease which has, within a day or two past, assumed the character of a malignant yellow fever. Certain symptoms, and a mild form of the same disease, have prevailed for a period of ten or twelve days, but not sufficiently decided to justify its designation as yellow fever by all the physicians in and about the neighbourhood; but within a few days a number of cases have occurred, with such definite symptoms as to leave their nature established.

"The first case occurred in the quarantine grounds among the boatmen employed in the Health Officer's barge, and those of the revenue barge, and one or two engaged on the steamboat dock, contiguous to this place. Subsequently, the cases occurred among persons living near the shore, in a district extending about a mile south, and a quarter of a mile in shore.

"The number of cases, thus far, has been about 50. Of these, the malignant cases, numbering 12, commenced on Wednesday, the 23d of August, and have been occurring daily since. Six deaths

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have occurred from among these, with all the symptoms so decided as to leave no doubt in the minds of the medical gentlemen who have seen them, concerning its nature.

"For the cause of the disease, I think we must look to vessels from New Orleans, lying at quarantine, having had yellow fever on board. These are the barque Edgar, and ships George Hews, and Callander. They have been removed as far as possible from shore; sufficiently to obviate the danger from them."

By the Board of Health a select committee of five was immediately appointed, in connection with the Health Commissioners, to examine into the existence, origin, and nature of the disease, and to suggest such measures in relation thereto, as they might deem it advisable for the Board to adopt. All communication between the city and infected district was at once prohibited.

On the following morning the select committee reported to the Board of Health as follows:—

"That the disease in question had its origin in the present locality from the presence of the vessels at quarantine, as named in the communication of the Health Officer to the Board, at its meeting of yesterday. That these vessels, to wit, the George Hews, Edgar, and Callander, had each arrived at the quarantine station from New Orleans, which port they left since the 26th of July. That the first had seventeen cases (of yellow fever?) during the passage, of which seven terminated fatally; the Edgar lost three cases, and the Callander one. That the above vessels, on their arrival at our port, anchored at the usual anchorage ground, which is about a quarter of a mile from shore, and that the prevailing wind during the time of their lying there had been from the north-east, and blowing directly on the shore where the disease prevails.

"That the first cases of the disease were, as stated in the communication of the Health Officer, among the persons employed in and about the quarantine ground, and that, subsequently, it appeared on the shore adjacent to those grounds, in the form of a mild, ordinary fever, which, afterwards assumed a malignant character, and was, after a full investigation by the physicians, pronounced yellow fever. The disease, as it now exists, is confined to the shore of the island, not extending inland more than half a mile, and the length of the district affected being rather more than a mile, which district includes the quarantine and Stapleton ferry landings. The number of persons on shore affected by the disease, since its appearance, about a fortnight since, in its mildest form, is about 34, and the

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cases of the malignant form amount to 16—the first of which appeared on the 23d instant; of these latter, 7 have terminated fatally.

"The Health Officer has had the above-named vessels removed to an anchorage ground in the lower bay, more remote from the shore, and where little or no population is to be found, and ordered a large distribution of the usual disinfecting agents along the coast, as far as the same is known to be infected.

"Your committee recommend a continuance in force of the resolution, as passed by the Board, requiring a cessation of intercourse by means of the usual ferry or other vessels; and they further recommend to their fellow-citizens, and require from them, a strict observance of these and such other sanitary regulations as the Board may feel themselves called upon to enforce."

Beyond the meagre information contained in the foregoing extracts, we have been unable to obtain any facts in relation to the disease referred to. A correct history of its symptoms and ordinary course is necessary, in order to enable us to decide as to its character. The editor of the *Buffalo Medical Journal* states (number for Oct. 1848), that "We have been assured by Dr. Stone, of New Orleans, who examined the cases, and whose ability to recognize the disease may be confidently relied upon, that its identity with the yellow fever of New Orleans is unquestionable. We learn, also, from a private source, that the characteristic post-mortem appearances, as described by Louis, in his Essay on the Yellow Fever at Gibraltar, have been discovered in all the fatal cases that have been examined. Some of the physicians of New York, as is intimated, deny, however, that it is yellow fever." Blisters, &c., were resorted to with the best effects. No case proved fatal, although many were very tedious in convalescing, and the patients were much reduced by the disease.

During the summer and autumn of 1848 a form of fever prevailed in the city of Natchez, Mississippi, which is denominated mild yellow fever by Dr. Stone, in a communication on the subject, contained in the *New Orleans Med. and Surg. Journ.* for March 1849. If the epidemic was really one of yellow fever, it is certainly the mildest form of that disease of which we have any record. Under every point of view the epidemic of Natchez is invested with much to interest the practitioner.

Dr. Stone remarks that the almost total absence of intermittent, remittent, and other fevers, in the city of Natchez, during the sum-

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mer of 1848, especially for several weeks preceding the second week of August, afforded a rare and valuable opportunity to those conversant with the peculiarities of yellow fever, to witness the latter, in its mild form, make its appearance, and prevail extensively, uncomplicated with others of a periodical and totally opposite character.

The disease commenced under the hill, early in the month of August. It was rife about the 10th to the 20th of the month. Previously to the beginning of November, the number of cases had become very few, when, between the 2d and 5th of this month, frost occurred, and the disease again increased for a few days. The epidemic ceased towards the latter part of November.

The only cases, other than those of mild yellow fever, which occurred to Dr. Stone during the continuance of the epidemic, were a few cases of mumps, some complicated, others not, with the prevailing fever; two of pure intermittent from the river and swamps; one case of mucous diarrhœa in an infant; one of convulsions in a child, from gastro-intestinal irritation, followed in eighteen hours by the symptoms of yellow fever, and a few other trifling ailments, as a common catarrh, without fever, &c.

The number of cases of yellow fever, occurring during the continuance of the epidemic, has been—and Dr. Stone believes, within bounds—computed at 800, and the population at 4000 to 4500. The number of deaths was 42.

The disease was mild, from beginning to end, with more, though still few, exceptions as the season advanced—and mild it remained, with still few exceptions. These exceptions occurred in persons recently from the North, and from Scotland and Ireland, and others of a debilitated condition of body, the result of chronic diseases, or of intemperate and improvident habits, &c.

Some persons were so slightly affected as to attend to their business, suffering pains, and with their skin and eyes more or less yellow; others were confined for a day or two with slight fevers and pains, &c. A few were affected with pain every four days, for weeks; and in one case, the system laboured, for the greater part of two months, with severe and indubitable indications of the influence of the poison, but without any regular development of fever. The cases ranged from the simplest and mildest character of the old fashioned "bilious state of the system"—a mere indisposition yielding readily to a mercurial purgative, or subsiding naturally, though, in general, not perfectly—through all grades, to, in a few instances, that of great and mortal severity.

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The disease attacked all ages, colours, sexes, and conditions, even old yellow fever subjects, though it generally spared this class until an advanced period of the epidemic, and uniformly with less severity —the same remark is applicable to individuals who had long resided at Natchez, or in the South. Some few genuine second attacks, no doubt, according to Dr. Stone, occurred, and they have been invariably represented as alike.

The attack usually began, without previous indisposition, by the occurrence of sudden pains in various parts of the body, chiefly in the head, back, and knees. In some cases, however, there were marked indications of the effects of the poison producing the disease; as bitter taste, pains, yellowness of the eyes, &c., for days or even weeks preceding the attack. In many, especially children, the attack was ushered in by vomiting, and in most by a sense of chilliness.

The disease consisted of but one febrile paroxysm, generally with sweating, marked by a peculiar offensive odour, though sometimes with dry skin, and continuing from a few hours to two, three, and, in some few cases, to four or five days, during which no true remission was ever noticed. As the case tended to a favourable remission, the fever gradually subsided, with a continuance of the perspiration for many days, but with abatement in offensiveness, and generally, also, in quantity; the pulse gradually came to the beat of health, though always more slowly than in similar stages of other fevers. If the tendency was to death, the fever subsided less gradually, the skin continued dry, or was bathed by partial sweats—it became yellow, or, if yellow before, more intensely coloured; the pulse became more suddenly slow—falling to 55, 60, or 65, and at the same time, round, distinct, and regular—but not with a healthful beat. After the regular febrile stage had passed, a secondary fever sometimes supervened, but invariably from some imprudence; as taking improper medicine or food, or at an improper time, muscular or mental efforts, or undue exposure. With the renewal of the fever from any of these causes, gastro-duodenal inflammation was often excited, by which the fever was kept up for many days. This occurrence of secondary fever was confined, so far as Dr. Stone's observations extend, to the milder attacks; in the more severe cases, any gross imprudence was liable to be followed by the more fatal symptoms—vomiting, red tongue, slow pulse, &c., and not fever. Some patients complained of a burning at the stomach just before or at the decline of the fever.

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Catarrhal symptoms—more frequent and marked towards the middle and end of the epidemic—were very common; as hoarseness, pain in the throat, without swelling or much redness, a hawking up of great quantities of mucus, a free secretion from the nostrils and eyes, and a cough without expectoration, but sometimes shrill, as in croup. The mucous surfaces in all parts of the body became often implicated; in that of the uterus it was evinced by its secretion coming on almost invariably.

In the more severe cases, violent and repeated vomiting was a common symptom; in the others, the stomach was chiefly affected with nausea, or a sense of fullness or oppression, after the fever had continued for a day or two; if vomiting occurred, it was of a large quantity of bile, and afforded relief. In the more severe cases, it was of mucus or the fluids drank, and afforded no relief; if it occurred in these towards their close, or, in the milder ones, became worse, it was of mucus—or a brown and, finally, black fluid. Some cases terminated in death, without this vomit, but were attended by hemorrhages from various parts before or after death.

The bowels were almost uniformly constipated; they were, however, easily acted upon by medicines at any period of the attack. At the onset of the attack a calomel purgative, and daily enemata of tepid water, generally caused the discharge of large quantities, at first, of dark, blackish, intestinal secretion, followed by evacuations of pure yellow bilious matter. To secure the continuance of this excretion, it was only necessary to guard against or subdue the gastro-duodenal inflammation by local bleeding, ice, &c.; and the case would proceed to a favourable termination almost invariably—and in this, according to Dr. Stone, is comprised the whole treatment. If an excretion of bile failed to take place; if the bowels did not act after the first unloading, if the evacuations were thin and vitiated, and at a later period, green, mucous, grayish, transparent, fetid or inodorous, or composed of dissolved blood, the termination of the case was generally fatal.

In the early period of a few cases, occurring towards the close of the epidemic, blood was freely discharged from the bowels, and was no doubt, Dr. Stone thinks, serviceable.

If the attack was sharp, the urine soon became deep reddish yellow; more red and scanty as the case was severe, and with a dry skin; more orange or gamboge yellow, and free, as the fever declined, and the case improved; and often again red and scanty, if it became aggravated. The yellow colour was more deep in cases attended

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from the commencement, with a yellow suffusion of the skin and eyes. It was seldom, Dr. Stone remarks, that the urine did not exhibit a yellow colour, increasing at the period of improvement, or only taking place at this time. Some cases were so slight that it did not deviate from the healthy appearance excepting at this period; and in others, again, of great intensity, it was almost colourless until this period.

The skin was never very hot, and most generally moist. The perspiration—always offensive, often fetid—was, at the beginning of the attack, generally free, or easily rendered so by a foot bath, and gradually became less copious but equally free from all parts of the body. It was more glutinous and disagreeable, or having this character from the commencement, retained it, until the system was evidently fully relieved, or, as death approached, it became liquid, and then often partial. The skin being moist with this glutinous perspiration, recovery was more easy. If dry, as it was, in some cases throughout the fever, the difficulties of the case, and the distress of the patient, were greater.

The skin was, in many cases, of a bright red; in a great number, the redness was confined to face, neck, chest, and hands. It was a bright suffusion; on the cheeks often deep red, almost purple, the face being bloated as in drunkenness. With few exceptions, the cheeks were red, and the face swollen, even when the skin generally was pale, or of a dirty yellow hue.

Although a yellow tinge of the skin, more or less decided, was seldom absent at some period of the attack, yet, in some cases, it did not occur until after recovery. In one fatal case, the skin was of a dead white during the black vomit. When the yellow colour appeared or increased towards, or after the period of calm, a dark yellow was not an index of as much danger as a light lemon, which latter never appeared before this time, and only in the severer cases.

In some cases, the entire body was covered with a rash; in others, it was confined to the face and neck; some, had red blotches and pimples on these parts and on the hands; in others, the skin presented the appearance of measles. Dr. Stone saw none of these eruptions after a few days' continuance of the disease, though he heard of their continuing longer. He has known many, who, after the disease was cured, had boils and pimples in great numbers.

During the early part of the febrile period, besides a fullness of the face, there was usually an œdematous swelling of the hands and

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fingers; in a great number and in very manageable cases, the swelling extended to the whole body. In one case, a finger, after a severe pain on the second day, gradually became dark red and swollen, with increase of pain, from an exudation of blood into its tissue. In another, a similar swelling occurred, on the third day, around one ear, and extended to both eyelids, which latter became, in consequence, closed for several days. These swellings terminated, after many days of intense suffering, without suppuration, but with extensive desquamation, which also took place after the eruptions and other affections of the skin.

For the first six to twenty-four hours, the tongue remained natural, but soon became pasty at its base, and more or less red. When pale it was usually much coated with a slimy fur and very moist—or it was of a light red colour more or less furred. Sometimes it was pale and flabby without fur—at others, unduly red, dry or moist, at first without fur, but a slight coat appearing as the case improved. The most trivial causes quickly changed the appearance of the tongue. Sitting up, or improper food, would cause a tongue of proper colour to become very red. It was sometimes red, and disposed to dryness on the second or third day—in one case, at the tip, within four hours—in four others, over the whole surface, or confined to the tip, or in a broad streak through the centre. As the case became worse, the tongue became deep red, cracked, dry and bleeding, or natural—a sign of fearful import. It was often tremulous in cases of severity, in some it was tremulous even after convalescence.

The taste was impaired, and in many instances continued so for many days after recovery—a bitter taste was seldom absent. The thin, white pellicle, described by Dr. Devaletti, was formed on the gums in all instances where the secretions of the mouth were free; but when these were deficient, the gums were dry, pale, hard, and without the pellicle.

Thirst was often absent on the first day, and in some cases throughout the attack. It seldom, however, failed to become excessive on the second day, and continued so during the fever, and into the period of calm. The patients called often for drink, but were satisfied with moderate quantities. A true desire or relish for food was slow to return; in two chronic cases, however, it continued voracious, and only subsided with an improvement of the health.

The breath was generally quite offensive. In one instance the patient expressed the disgust it gave him; and in this case, a fatal one,

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the skin was dry, the urine like brandy, and small in quantity. The fetor was more decided when the skin was dry than when it was moist, and when the urine was deficient than when it was copious and yellow. It was not observed during the first month the epidemic prevailed, though, subsequently, it was seldom absent in the mildest cases.

The pulse, during the early period of the fever, was seldom more than from twenty to thirty beats above the natural standard—it was expanded and firm, without hardness. In a few cases it was vigorous, thrilling; in many tumultuous, in only a very few firm. As the first violence of the fever moderated, but the calm not coming on—the pulse, with diminished volume and frequency, exhibited a peculiar beat—firm, steady, measured; quick, not frequent; neither hard nor soft, with distinct outline, and still expanded volume—from ten to fifteen beats above the natural number. It gradually diminished in frequency until the disease had fully yielded; and often retained its slowness until the patient's strength had been somewhat reinstated. This pulse was not always observed at the onset of the attack; it was, in more than one case, nearly the only sign of disease, except sallowness of the skin. It was absent when the perspiration became liquid, on the case tending to death, or when, after the disappearance of the peculiarity of the disease, exacerbations of fever occurred from extraneous causes. It returned in true relapses. It was absent in two cases of pressing danger, in which the skin was dry, cool, and husky, and, as well as the eyes, free from yellow tinge; the urine clear and free; no bitter taste, and flabby tongue in one. In one of these cases the pulse was small, frequent, and soft; in the other, small and sharp. The peculiar pulse described was, according to Dr. Stone, evidently the pulse of the disease in its milder and more curable form. The pulse of the calm was of the same character—but slower, with less volume and strength, though still not weak until towards death.

There was a hot, burning sensation in the eyelids, and the eyes were red and yellow, and suffused with tears at the onset of the disease; the red predominated as the fever became more intense, and the skin clear and dry; the yellow was more perceptible as the skin became more jaundiced; the former yielding to the latter in a day or two. Dr. Stone observed the eyes to be brilliant and fiery red in only one case. In some mild cases, and a few of greater intensity, the eyes were neither much red, nor yellow. The yellow, if absent in the original attack, was sure to be developed at a subse-

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quent indisposition. The yellowness of the eyes and skin was less uniformly observed at the commencement of the epidemic, but was more generally present as it advanced.

A few of the patients were able to sleep, as in health, throughout the attack, but generally the disease was attended by sleeplessness even after the fever and pains had subsided. Dreams were a constant source of great disturbance, and in one severe case so affrighted was the patient by their horrid nature, that he feared to fall asleep.

An abundant extrication of gas in the stomach and bowels was a universal and distressing symptom.

Sighing was observed in cases of severity, or at the termination in death; hiccough was seldom absent at this stage.

In general, the mind of the patients was calm and without despondency. In one case there was said to be stupor; in another, wild delirium, and several terminated by a fatal attack of convulsions.

The pains by which the disease was characterized, were not always fixed—often diminishing or ceasing in the head, back, or other part, and again increasing or returning. If in the head, the pain was chiefly in the forepart—often on the top—in the centre alone, in one case, with pain in other parts. Sometimes the pain is in the occiput almost invariably, or deep-seated in the balls of the eyes, and in one fatal case it was very intense between the eyes. Sometimes the pain extends over the entire head.

When in the back, the pain often extended from the dorsal region to the stomach, and from the lumbar region across the hips to the lower part of the abdomen; down the thighs and legs to the feet, being more fixed in the calves, and in the knees. Pain, soreness, or aching was often complained of in the lower part of the abdomen, and this was the last to subside. In one case it was very severe, and the first symptom of the attack—lasting forty hours.

Many had a feeling of oppression or pain at the epigastrium, and in each side, as if bound by a cord. In a few cases the pain in the stomach and duodenum only appeared after the fever, disappearing and returning several times. In one case it presented the symptoms of bilious colic, but soon the peculiar characters of the epidemic presented themselves. In some, the pains assumed, or changed into, the form of cramps of the extremities, including the fingers and toes; in others, in the neck, and in one case in the diaphragm.

To the pain a general soreness of the parts which had been its seat, almost invariably succeeded; sometimes only a sense of weari-

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ness; in most cases an extreme sensitiveness of the skin. Many patients experienced an itching over the whole body at the commencement of the attack, which lasted for days. In one case there was so great a difficulty of deglutition that fluids escaped through the nostrils. In another, there was a dreadful sense of constriction impeding respiration, and giving a sense of impending death. Several cases of this description, though to a less extent, were observed, and in these the muscles of the neck were also generally affected with pain or cramp.

There was, in some cases, towards the close of the epidemic, a sense of oppression within the chest—more distressing at the conclusion of the febrile stage—being then, often, the only uneasiness complained of. It differed from the pain or soreness in the muscles of the thorax. It was seated within the chest.

All the joints, large and small, suffered, and sometimes the bones exquisitely—also the teeth; in one case, one tooth of a sound set, not chargeable to mercury.

In the more severe cases, the pains were confined to the head, back, and knees; they were less complained of, and sooner disappeared. An intolerable restlessness, with little pain, was an index of more severity. General pains, however severe, never indicated danger. They always moderated, sometimes disappeared entirely, at, or even before, the end of the fever; the relief being in proportion to the discharges of bile from the bowels or by the kidneys. The return of pain was very common, even to a very late period in the season. In one individual a sense of strangling came on several times, as late as six weeks after an attack; a purge of calomel invariably relieved it. In the calm the pains ceased, but were followed by a still more dangerous symptom—an exquisite sensitiveness of the skin, especially over the epigastrium.

In the milder cases of the disease, upon the termination of the fever, nearly all distress ceased. In some mild cases, however, the pains, though diminished in severity, still continued, changing their seat from one part to another; the pulse, tongue, and skin being generally natural or nearly so; and patient, feeling well, could not be induced to remain in bed, and await a true restoration of health and strength. Early in the epidemic, an early getting up was not productive of the same evil consequences as it was at a later period, when, however certain the recovery appeared to be, a slight imprudence seldom failed to cause a sad reverse, and too often death. The true period of danger was, in fact, when the fever had subsided.

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In fatal cases, the skin, after death, became more yellow than during life; livid spots, varying in extent, soon appeared on the neck, face, &c.; in some cases these were so dark and extensive as almost to obscure the yellow colour. A discharge of blood almost invariably occurred from the orifices of leech bites, blistered surfaces, and often to a considerable extent from the mouth, nose, and anus.

We have presented, somewhat minutely, from the details contained in the paper of Dr. Stone, the characteristics of the strange epidemic described by him. Everything connected with it is of interest, inasmuch as no little difference of opinion appears to have prevailed as to its character among the physicians of Natchez. Dr. Stone maintains that the disease was a mild form of yellow fever, and enters into a series of arguments, which are neither very clear nor very conclusive, in support of his decision.

The introduction of cholera into the United States during the past year, was under circumstances of a very peculiar character.

On the 2d of December, the packet ship New York, arrived at the quarantine station, Staten Island, having lost seven of her passengers during the last week of her voyage, from cholera. The vessel left Havre, where no case of the disease was at that time prevailing, on the 9th of November, with 331 steerage, and 21 cabin passengers, and a crew of 33 persons, making a total of 385 persons. The passengers were principally Germans who had been residing in Havre, and its environs; they were mechanics, and in comfortable circumstances until, after the recent revolution, the native French artisans succeeded in inducing the public to withdraw from them their patronage, and the municipal authorities to proscribe them. They were constitutionally healthy and robust, exhibited no indications of depression or grief, and were supplied with an abundance of wholesome food and good water. On the 25th of November, one of the steerage passengers, previously in robust health, was suddenly attacked with vomiting and purging, accompanied by cramps of the extremities, and coldness of the surface, and died on the third day. The next day, an old man in feeble health, was attacked with similar symptoms, and died on the second day. Within the two succeeding days, two other cases occurred, in children, a boy and girl, both about five years of age, and previously in good health. The girl died in two, and the boy in less than five hours. The next day, a man 40 years of age, was attacked, and died in seven hours.

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On the day after, two children sickened and died, the one after six, and the other after eight hours' illness. From the period when the ship came to anchor, on the night of the 2d of December, until noon of the ensuing day, when the passengers were landed, twelve new cases occurred, and eighteen additional ones soon after; making thirty cases in all, of which twenty terminated fatally—thus, including the seven which took place at sea, giving twenty-seven deaths in thirty-seven cases. The sick were immediately separated from the well, and sent to the hospital. The steerage passengers were lodged in the quarantine storehouses, which were already occupied by about seventy persons, who had just recovered from other diseases.

At the time the first cases occurred on board the vessel—November 25th—she was in N. lat. 42°, long. 61°, about 140 miles S. S. W. from Sable Island. On the two days preceding, the wind was N.N.W. On the 25th it changed to the southward, with squalls and rain. In the morning, the barometer was at 30 inches, and fell during the day to 29½ inches; the thermometer 60° F. On the 26th and 27th, the wind was westerly and fresh; on the 28th, moderate from N. W.; barometer, 30; thermometer, 42°.

At the time the vessel arrived at Staten Island, nothing like cholera existed there, or in the city of New York. But subsequently, a number of cases appeared among the convalescent patients at the quarantine station, some of whom were in direct communication with the sick removed from on board the ship. Others, occupying the adjoining apartments, and having no communication with the cholera patients, were likewise attacked. A man, who had been discharged, and went to the city of New York, after remaining a little over a day in the same inclosure with the cholera patients, was returned from the city as a case of cholera, and died on the third day. Six persons, inmates of the quarantine station, were attacked by the disease, who had not been over two days exposed to contact with, or proximity to, the patients received from the Havre packet.

On perceiving this communication of the disease to the other inmates of the hospital, Dr. Whiting, health officer at quarantine, to whose reports we are mainly indebted for the facts connected with the introduction of cholera into New York, immediately sent them away to be distributed through the other hospitals. After which three others of those who had been in the public stores were attacked, of whom two died. These had all been inmates of the

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hospital for weeks, were ready to be discharged, and had been but partially exposed for forty-eight hours to the influence of the disease.

A few days after the disease appeared at the quarantine, an individual, the same already referred to, coming from thence, stopped at a German emigrant-house in Greenwich street, New York, and being attacked with the disease, was carried immediately back, and died in a few hours, on the 11th of December. Several days after another case occurred in the same house, which is described as excessively filthy, and crowded with upwards of two hundred emigrant lodgers. This also terminated fatally in little more than twenty-four hours. On the 20th of December another case occurred in the city. A German, who had been twelve or eighteen months in this country, and who had only a few days previously come to New York for the purpose of taking passage back to Europe, was attacked in a house in Washington street, and soon died. He had had no connection whatever either with the house in Greenwich street, nor with the quarantine. Since this there is no account of any other case occurring in the city of New York.

From the 11th to the 19th of December, thirty-three additional cases occurred at quarantine; of these, thirty were among the German emigrants from Havre, one a Frenchman, and two inmates of the hospital. The whole number of cases at quarantine, to Dec. 19th, were therefore sixty-three; of these, twenty-nine proved fatal. A large proportion (twenty) of these cases occurred in children under fourteen years of age.

Up to the 1st of January 1849, the whole number of cases reported from the quarantine by the health officer, and by the resident physician is ninety-one, and the whole number of deaths forty-seven.

All the persons who have been attacked at the quarantine, from the first case on board ship to the last, excepting the inmates of the hospital, and one Frenchman, a passenger in the same ship, have been among two hundred and seventy Germans, who had been residing in Havre and its environs.

In regard to the character of the disease there can be little doubt. It was unquestionably identical in its leading features with the cholera of 1832.

Dr. Whiting informs us that in about one-third of the cases, the attack was preceded by diarrhœa. Most of the patients were affected with vomiting and purging; the discharges being thin, sometimes at first light brown, but generally white or yellowish-white, or pearl coloured, with white flocculi, forming a thick, whitish sedi-

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ment on standing a short time. They are well described, Dr. Whiting remarks, as *rice water* evacuations. In some cases half a gallon was vomited, but generally smaller quantities. The vomiting was usually accompanied by great uneasiness and pain, particularly at the epigastrium. In some cases vomiting existed without purging, and in others purging unattended by vomiting. In several cases there was neither vomiting nor purging, but the stomach and bowels were found, after death, filled with the same fluid as constituted the discharges where these occurred. One or more lumbrici were discharged either from the stomach or bowels in a large majority of cases. The tongue and breath were icy cold; sometimes the tongue was clean, but generally slightly coated. The voice became weak and husky, and with a great effort the patients spoke in a hoarse whisper. The skin assumed a livid colour, became cold and clammy, and when pinched up remained so for a short time. The countenance wore a haggard, sunken look; the eyes were dull and heavy; the pupil somewhat dilated. The extremities were shrivelled; the fingers and toes, with the nails, appeared as though they had been long macerated in warm water, and were of a purple hue. Nearly all the patients were affected with cramps and spasms of the extremities and abdomen: in some these were slight, but generally constituted a very painful symptom. The pulse, from the onset of the disease, became small and frequent—from 110 to 140, according to the progress of the disease; and in the stage of collapse entirely ceased at the wrist for hours. The breathing was laboured and hurried, and in cases in which the spasms were severe it was occasionally momentarily suspended.

The number or apparent violence of the symptoms formed no criterion, we are told, for the prognosis; fatal results following, in many cases, in a few hours, when the evacuations were slight, and spasms and other violent symptoms were absent. In this disease, Dr. Whiting remarks, there has been but one stage—that of collapse. The first intimations were the extreme symptoms, defying the most prompt and decided remedies.

The post-mortem appearances consisted in engorgement of all the internal organs, resulting, to use the language of Dr. Whiting, "either from actual congestion, or from the retention of the cruor of the blood, while the serum is drained off." In no case was any alteration of structure observed. The skin was shrivelled, shrunken, and of a livid hue. The bladder was contracted, and in most of the cases there was an entire suppression of urine. The average

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duration of the disease, up to the 11th of December, was about ten hours; in children it was seldom more than four hours. The cases which occurred subsequently to this date, appeared to have been somewhat more protracted.

In the treatment of the disease, various plans were adopted; mustard emetics; large doses of calomel; capsicum and camphor; chloroform, saline mixture, and sugar of lead and opium, in large doses; but all of these plans proved unsatisfactory. From the administration of the chloroform, no other benefit was obtained than the relief of the spasms and cramps, for which end Dr. Whiting considers it an invaluable remedy in the disease. Calomel, in scruple doses, combined with opium, followed by smaller doses until "reaction is indicated by some action of the liver" in conjunction with the external application of heat, was the treatment next resorted to. Although Dr. Whiting, in his first report, states that this plan proved of most advantage in the cases that fell under his notice, still the results are by no means very satisfactory; twenty out of thirty cases proving fatal. Dr. Whiting's advocacy of calomel appears to be founded upon theoretical notions as to its action upon the liver. Every case, he remarks, in which the slightest bilious evacuation has been procured, commenced to recover from that moment, and although of itself unable to affect the reaction necessary for its own peculiar action, calomel will doubtless always prove the most potent auxiliary in the catalogue of remedies for cholera.

The treatment upon which Dr. Whiting finally settled down upon, as the one exhibiting the most decided agency in controlling the symptoms and inducing early reaction, is the exhibition of moderate doses of calomel, with morphine, at short intervals. Five grains of calomel, with a quarter of a grain of sulph. morphia was given at first to an adult; in half an hour or one hour, a scruple dose of calomel was exhibited, and was usually retained; afterwards a pill of cal. gr. v, and sulph. morph. gr. ¼, was given every hour, two, or three hours, as the effect may indicate. This is manifested in the subsidence of the pain and spasms; the diminished quantity and frequency of the evacuations; the return of warmth, and the restoration of the pulse. This treatment was continued until some indications of bilious action appeared; the first was usually a change of colour and consistence; the light, rice water, fluid discharges becoming at first of a greenish, and then of a brown or brownish yellow colour. The evacuations, Dr. Whiting remarks, both from the stomach and bowels, will frequently continue green, or of the colour

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of sulphate of copper for hours, but he has not known a single case to relapse where this effect had once been produced.

Under the above treatment, but nine cases died out of thirty-three; and as there appeared to be no difference in the severity of the symptoms in the onset of these cases, Dr. Whiting thinks himself warranted in attributing the diminished fatality to a more happy plan of treatment. But in estimating the true value of the plan of treatment last described, we are to take into account an important fact, namely, that upon the first occurrence of cholera in any locality the disease assumes, whether in consequence of the more concentrated character, or greater virulence of the morbific agent, whatever this may be, by which it is produced, a peculiar degree of malignancy—the persons attacked sink under it at once, and all treatment is alike impotent in arresting its fatal tendency in the majority of instances; afterwards, however, the disease diminishes in malignancy, and becomes more easily controlled by an appropriate treatment. This is true of nearly all those diseases which ordinarily prevail as epidemics.

An important question presents itself in regard to the cholera introduced into New York. In what manner did the disease originate? Was the morbific cause generated on board the vessel during her voyage from Havre to New York? Are we to suppose that on the 25th of November the vessel entered a cholerific atmosphere stretching far into the Atlantic? Or is it more reasonable to suppose that a portion of the passengers carried with them the seeds of the disease, or a poison, capable of generating cholera under favourable circumstances. In the absence of facts, no satisfactory answer can be given to either of these queries. The history of the typhus fever, as it has occurred among the immigrants from Europe, who have arrived in immense numbers at most of our seaports during the two or three past years, has shown that a morbific cause may be acquired and retained for many weeks, and even months, before disease manifests itself. But in the case of the typhus fever affecting the immigrants, the source of the morbific poison was in every instance apparent and well understood; but not so in regard to cholera which broke out among the passengers on board the ship New York. The disease first occurred, and was subsequently, in a great measure, confined to the German passengers—healthy, robust mechanics—who had been living in Havre and its environs, where not a single case of cholera had occurred; who suffered, during the voyage, from neither the want of good food or water, nor the dis-

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comforts of an unusually protracted or tempestuous passage, and who remained perfectly free from disease of any kind during the first sixteen days they were at sea.

The occurrence of the disease has been attempted to be explained by supposing that many of the immigrants were from Hamburgh and other parts of Germany where the cholera prevailed, and that one or more of these brought with them the bedding or clothes of one of their relatives who had died of the disease. The first part of the voyage being mild, no extra clothing was required, but on encountering the cold, raw atmosphere of the Grand Banks, warmer clothing became necessary; the chests were accordingly opened, and the infected clothing was exposed in a close atmosphere reeking with the foul air and filth of three hundred and thirty closely stowed steerage passengers. In this manner, the reason why the vessel was at sea sixteen days before the cholera made its appearance, is supposed to be rendered plain. But all this is mere supposition; there are no facts to sustain it.

That these immigrants brought with them a poison capable of communicating the disease to those who were exposed to contact, or were in the immediate vicinity with them, is shown by the cholera extending to the inmates of that portion of the quarantine station in which the sick from on board the infected vessel were placed. There are facts which would appear to show, however, that the disease occurred in the city of New York, in more than one instance, in individuals between whom and the cholera patients at the quarantine there had been no intercourse, either direct or indirect.

The cholera made its appearance in New Orleans upon the 12th of December last. Notwithstanding the first cases occurred in passengers from on board a vessel, which had arrived the day previously from Havre, there are strong reasons for believing that the disease originated in New Orleans, throughout which city it soon after prevailed epidemically.

The ship Swanton, from Havre, arrived at New Orleans on the 11th of December, with a large number of immigrants on board. It being reported that during the passage some of the passengers had died of cholera, the mayor caused the vessel to be visited and carefully examined. By this examination it was ascertained that between 15 and 16, out of 280 persons, had died during the passage, some with dysentery or diarrhœa, and other affections which are liable to occur among a large crowd of steerage passengers, during a long voyage, confined to a small space, and breathing a contami-

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nated atmosphere. A female passenger, who, when the vessel arrived, was labouring under an affection of the bowels, was taken to the Charity Hospital, where she died within a few hours, with all the symptoms of genuine cholera. The day after the vessel anchored, a German, about 25 years of age, was attacked with vomiting and purging, and cramps in the stomach and lower extremities; about 9 o'clock the next morning he was admitted into the hospital in a collapsed condition, and died during the day. This man left the ship on the 12th of December, a cold, rainy day, and exposed himself, as he acknowledged, until he became quite wet—ate fruit abundantly, and retired to bed. During the night he was attacked. From this time cases began daily to occur, in different parts of the city, remote from the Swanton, and without any traceable connection with the two which had occurred in passengers from on board that vessel. By the 21st of the month, 56 deaths took place from malignant cholera, and 48 from ordinary cholera morbus—total 104.

The editor of the *New Orleans Medical and Surgical Journal*, in the number for January of the present year, remarks: "The arrival of the ship from Havre, where not a single case had made its appearance, and the development of the disease in our midst, must be regarded merely as a coincidence, not as a consequence—not as cause and effect. Otherwise, the disease must have appeared first in the vicinity of the vessel, and not, as is well known to be the case, in a part of the city more than a mile from the anchorage of the Havre packet." From the same source, we learn, that, for some days prior to the appearance of the first case of cholera, in New Orleans, the rain fell almost daily—the atmosphere was humid, murky, close, and oppressive; while the streets and gutters were surcharged with offal and filth of every kind. The malaria thence resulting, soon manifested its poisonous influence upon those already predisposed to disease by the effects of a warm and damp atmosphere; producing diarrhœa, vomiting, cramps, collapse, and death. All this time the wind was from the south. At intervals during the day, an almost tropical sun beamed upon the city. The city was enveloped by a moist and murky vapor, charged with pestilential matter, exhaled from the stagnant pools and filthy sewers that surround it. The thermometer rose to 75° and even as high as 84° in the shade. It may be well to remark, that this state of things was possibly aggravated by the exposure of a large quantity of mud and dirt to the action of the rain and sun—caused by excavating the foundation of the new custom house near the levee. While the state

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of the yards, streets, alleys, and gutters, notoriously in a filthy condition, and now made worse by the fall of a large quantity of rain, all added strength and virulence to the exciting cause of the disease.

In describing the disease as it appeared in New Orleans, the editor of the Journal just quoted, remarks: "The stage of collapse began in some cases almost from the moment of attack; it was characterized by great prostration, a feeble, wavering, thread-like pulse; in some cases, panting respiration, a cold, shrivelled surface, bluish tinge of the hands and feet, and generally of the face and lips. The tongue was moist, of a delicate pink along its borders, on the dorsum either natural or of a yellowish hue. The eye was sometimes injected as in yellow fever, and the tunica albuginia of an icteric tinge. Sometimes it had the appearance of one in a state of profound intoxication. The intellect was generally, but not invariably, clear. The patients often complained of a sense of weight, of tightness about the præcordial region, and lower part of the chest. If reaction was induced by stimulants, revulsives, &c., the tongue became dry, and red or brown; singultus sometimes supervened; the skin became red and warm; the pulse rose, both in fulness and strength; the carotids throbbed; the head was painful, and the thirst unquenchable; and too often the physician deemed his patient out of danger. But suddenly he sinks again into a fatal collapse, speedily followed by death. In some cases death took place during the period of reaction; with a burning though perspirable skin; and other evidences of great arterial excitement." This the writer quoted considers one of the anomalies of the late New Orleans epidemic. If the patients survived the first collapse, the disease ran into a form of congestive typhus, which speedily ended in cerebral congestion, coma, and death. The editor of the *New Orleans Journal* is persuaded that the late epidemic differed in some respects from that of '32. The discharges were not so frequent and profuse, the cramps less constant and obstinate, and a much less number recovered after entering the stage of collapse.

Dr. Wederstrandt, of the Charity Hospital, New Orleans, in a communication to the editor of the *Boston Medical and Surgical Journal*, states that, since the middle of December, between forty and fifty persons affected with cholera had been admitted every day. Upwards of fifty cases had, up to the date of his letter, originated in the hospital, among the convalescents from other diseases, and the attendants. Three of the washerwomen were attacked, and two

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died. The disease appeared, in most cases, to consist of three stages; first, a feeling of malaise, with diarrhœa; this was followed by vomiting and purging of rice water discharges, and cramps, followed by a cold stage, with clammy perspiration, and suppression of urine. The intelligence remained intact until very late. The disease has proved fatal within three hours; more often it was protracted to twelve and fifteen, and rarely beyond twenty-four hours. The violence of the pain in the stomach, and the vomiting and purging did not always afford a basis for an unfavourable prognosis, for many patients recovered rapidly in a few hours after being thus attacked. About half an hour after death, the body, which, just before was as cold as ice, became as warm as in health, and the contractions of the muscles continued for half an hour, and in some cases for nearly an hour after death. During the first days of the epidemic, nearly all the cases proved fatal; but within the few days preceding the date of Dr. W's communication, it seemed to be rather on the decline; the admissions and deaths had declined, and many recoveries took place.

In the *New Orleans Medical and Surgical Journal* we are presented with the autopsy of eighteen cases of epidemic cholera.

In the *thorax*, the lungs were of a pink colour, and always collapsed, excepting in three cases, where there existed morbid changes occurring anterior to the death by cholera. The blood found in them was very dark. In six cases there was a good deal of mucus in the larger bronchi. The chambers of the heart were invariably dilated and filled with blood—the right auricle remarkably so, as well as the vena cava. In three cases, examined three hours after death, there existed on the external surface of the heart several reddish spots somewhat resembling ecchymosis.

In the *abdomen*, the stomach was, in five cases, intensely inflamed; the mucous coat was soft, and of the colour of wine dregs. The stomach contained a quantity of fluid resembling the black vomit of yellow fever. In twelve cases the traces of inflammation were less intense, and the fluids appeared of a yellowish green colour. The mucous coat of the intestines was pulpy and thickened. In four cases there was evidence of violent inflammation, extending the whole length of the small intestines, and involving the ilio-cœcal valve. In nine cases the evidence of inflammation was less apparent. In five, the mucous tissue was bleached, anæmic, strongly contrasting with the former. The glands of Brunner were plainly visible; those of Peyer were salient, pulpy, red, and softened. The

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solitary glands were larger than natural, and easily distinguishable throughout the whole of the intestinal tube. The intestines contained sometimes a turbid, and at others a transparent, whitish fluid, with shreds floating in it whiter than the fluid itself. When tested, this fluid was found to contain albumen. The *liver* was, in a few cases, much engorged, but not so in the majority—otherwise its appearance was healthy. The *gall bladder* was always found distended with bile, and its ducts were pervious to air blown from its fundus into the intestines. The urinary bladder was very much contracted. In three cases it contained a few drachms of a fluid closely resembling that found in the intestines. In the *kidneys* and *spleen* no change was apparent. The veins within the abdomen were distended with dark blood.

The *brain* appeared healthy; to the touch it seemed even firmer than natural. Its serous membranes felt very dry—pasty. This was the case also with respect to the serous membranes of the thorax and abdomen. The veins were in some cases much distended, but not in all. In two cases there was some effusion in the lateral ventricles.

The *spinal cord*, as examined in sixteen of the cases, presented no remarkable change. In eight, however, air blown into the sub-arachnoidean space showed several distinct adhesions between the cord and its serous envelop. There was less sub-arachnoidean fluid than usual; in some cases it was almost entirely wanting. In two cases there seemed to be a partial softening of the medulla, at a point corresponding with the ninth dorsal vertebra.

In New Orleans, the disease confined itself chiefly to the intemperate, the reckless, and such as were exposed, badly clothed, fed, and lodged. The blacks suffered throughout the progress of the epidemic. Old residents, and persons thoroughly acclimated, were less liable to attacks than strangers newly arrived in the city. Those who had passed through the epidemic of 1832, are said to have very generally escaped. The disease attacked and carried off a number who happened to be labouring under chronic diarrhœa; this was particularly noted in the Charity Hospital. It spared neither the infant nor the octogenarian, who happened to be predisposed to the disease from previous attacks of diarrhœa. But few persons who could command all the comforts of life were attacked; yet all were more or less under the epidemic influence, and few escaped some disturbance of the alimentary canal; there was, in fact, a general tendency to excessive evacuations from the bowels. All complained

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of uncomfortable sensations in the stomach and abdomen, either with or without purging.

During the prevalence of the cholera, many suffered from a mild form of influenza. In some, it was attended with catarrhal symptoms and severe bronchial irritation, accompanied with febrile disturbance, pains and soreness throughout the chest and muscular system generally. It rarely proved fatal, without the most reckless exposure and culpable neglect on the part of the patient. The editor of the *New Orleans Medical and Surgical Journal*, to whom we are mainly indebted for the facts connected with the occurrence of cholera in that city, remarks, "we observed that those who suffered from influenza, escaped an attack of cholera; hence we are disposed to regard both diseases as produced by the same causes, but operating upon different parts of the system, according to peculiarities of constitution," &c.

Dr. Wederstrandt, in the communication already referred to, states, that in the Charity Hospital, the disease was treated on general principles, and according to the indications of each individual case. In the early stage, he had reason to be satisfied with the preparations of opium, and counter-irritants. Some physicians gave a large dose of opium and quinine in the beginning, when they saw their case early. They gave from 30 to 40 drops, to a drachm of tincture of opium, with half a drachm of quinine for a single dose, and speak highly of their success. In a few cases, Dr. W. thought that the practice did good, but he has not used it to any great extent. When brought in the hospital, which they generally are, in the cold stage, stimulants, externally and internally, were employed, with nourishing broths, and several reacted under this treatment, and finally recovered. Males and females, young and old, were alike subjects of the disease; but far more men than women were attacked. Dr. W. has seen many children die of it, some under five years, and a few old people at a very advanced age.

Up to December 28th, 589 deaths from cholera were reported; 330 of these are stated as from Asiatic cholera, and 259 as from cholera simply. After this date, up to January 5th, inclusive, 533 deaths are reported, all from Asiatic cholera. Making a total of 1122 deaths from cholera; of these, there were reported as from Asiatic cholera, 863; from cholera simply, 259.

On the 22d of December, the day after the existence of the epidemic was recognized by the Board of Health of New Orleans, the interments were 46, and for the successive days of that month, 71,

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84, 77, 54, 61, 92, 84, 77, and 71. The greatest mortality was on the 28th, when the interments amounted to 92, and nearly equalled those from yellow fever in that city, when it had been at its worst. On the 30th the weather cleared up with a north-west wind, and the last day of the year the sun shone out, and the air was cool and bracing. The interments on the 1st of January were 67, and the Board of Health announced that the epidemic was abating. The day following, the number of deaths reached 84; on the 3d the interments were 67; on the 4th, 39; and on the 5th, 44. The Board declared that, in private practice, the disease had been found entirely manageable, and that the fatal cases were furnished by persons of irregular habits, in whom the first symptoms were met by no medical treatment. An increase in the fatality of the disease, now no longer regarded by the Board of Health as epidemic, is reported to have followed the celebration of the 8th of January. The number of interments from cholera, for the week ending the 12th, is stated to have been 155, or 22 a day, just half the mortality that attended it when it was pronounced epidemic.

It is worthy of remark, says a writer in the *Western Journal of Medicine and Surgery* (Feb. 1849), that cholera has not swallowed up all other diseases in New Orleans, nor compelled them to "wear its livery," as has been so often remarked of epidemics. While it has increased the general mortality, other diseases have continued to prevail. Thus, while the deaths from cholera in a week were 155; from other diseases, the deaths in the same period were 155.

The mitigation in the severity of the epidemic, so soon, consequent upon the change of weather, is instructive. Up to the close of December, the heat had been almost tropical, and the air, at the same time, was surcharged with moisture; a state of weather peculiarly favourable to the production of bowel complaints, and in which the cholera has manifested its greatest malignity.

The boats leaving New Orleans, after the alarm of cholera began to spread, were crowded with immigrants, and persons flying from the disease. Many of these persons perished on the passage, and a number died after reaching Memphis, Nashville, St. Louis, Louisville, Cincinnati, and even Pittsburgh. One or two are known to have been seized with the disease, and to have died, on the National road, beyond Wheeling. The Peytona, bound for Louisville, buried during her passage 14 victims of cholera, chiefly from among her deck passengers. Dr. Strother speaks of 14 cases as having occurred in a boat on which he came up from New Orleans, half of which

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were fatal. But while the mortality was such among the indigent, the irregular, and neglected, scarcely a cabin passenger died on any of the boats.

On the 24th of December, the Savannah arrived at Louisville, from New Orleans, with three cholera patients, four of her passengers having died with the disease on her way up. In all, from that time to the 18th of January, 17 cases were admitted into the Louisville Marine Hospital, of which 9 recovered and 6 died, 2 being still under treatment. All the patients, except two, were in a state of collapse when they entered the hospital. None presented the true *rice water* discharges, but the matter evacuated was a yellow fluid, having the appearance of being, more or less, tinged with bile. One case originated in the wards of the hospital, the subject being a convalescent from intermittent fever. None of the nurses took the disease, nor did it spread among the other patients.

An individual from North Carolina, by the way of Philadelphia, was attacked with cholera on a boat between Cincinnati and Louisville, and died. Cases of the disease are reported to have occurred in the city of Louisville; and though it is denied that they were of the true epidemic character, still, judging from the examples reported by Drs. Talbot and Yandell, which we are told, in the *Western Journal of Medicine and Surgery*, February 1848, represent attacks of which most of the practitioners of Louisville have seen examples during the month of January, we should certainly be inclined to pronounce them mild cases of genuine cholera. We are told that, at the time the case of Dr. Y. was under treatment, a great many persons in the city were affected with diarrhœa, accompanied in some by vomiting and cramps, and in all by nausea, and other symptoms of gastric derangement. The cases of cholera, which occurred in Louisville, were comparatively few and scattering, and at no time did the disease exhibit anything like an epidemic tendency. No increase of this tendency manifested itself. No new cases were admitted into the Marine Hospital for the last two weeks of January. At the beginning of the ensuing month there still was manifested a predisposition to disorders of the bowels quite unusual at that season of the year. There appears to have been nothing remarkable in the weather. Rains were frequent and copious, but not more so than is often observed there in winter, and they were succeeded by cold, bracing winds from the N. W., and frosts sufficiently protracted to enable the ice dealers to fill their houses.

Cases of the disease were carried by the boats from New Orleans

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to Cincinnati. It is stated, by Professor Lawson, in the *Western Lancet* for January 1849, that two patients died at the Commercial Hospital, one on the 24th, and the other on the 25th of December; the prominent symptoms being vomiting, purging, and spasms. The dejections, in one case Dr. L. saw, or rather the fluids remaining in the intestinal canal after death, were *thin*, but not quite the *rice water* discharges. Post-mortem examinations, moreover, revealed considerable organic lesion of the intestinal canal, sufficient, with exposure and imprudence, to have caused the disease. These cases, Dr. L. concludes, may have been *choleroid*, exhibiting some degree of choleraic influence, but not all the symptoms characteristic of well marked cases of the disease. Subsequently, two other cases occurred in the hospital, presenting symptoms more or less approaching to cholera; one, indeed, having true rice water evacuations. Dr. L. has heard of a case in private practice—from New Orleans—presenting the symptoms of cholera in a still more marked degree. Upon the whole, it would appear certain that patients labouring under cholera influence reached Cincinnati; but there has not been any epidemic influence manifested there.

It is stated, upon respectable authority, that up to the 10th of January, eighteen deaths had occurred from cholera in Cincinnati. Twelve of these originated on the river, and six within the city. On the 6th of January, there were eight cases in the hospital, five of which terminated fatally, leaving three, two of which on the 10th were improving. At the last date, there were but five cases in the private practice of physicians within the city known to the Board of Health, making, with those in the hospital, eight cases definitely ascertained.

The disease appears to have occurred epidemically, but only to a slight extent, at St. Louis. Between the 15th and 19th of January there occurred seven deaths from cholera. From two of the families, in which the deaths occurred, several persons were sent to the hospital prostrated with the disease, among whom two deaths occurred, making five deaths in the members of one family. In the week ending Monday 22d, seventeen deaths are reported to have occurred in St. Louis. The disease is said to have been of local origin. Towards the close of the month the disease appears, in a great measure, to have ceased.

At Lavaca, Texas, ninety men of the 8th regiment of U. S. infantry, mustering 450 men, are reported to have died of cholera up to the 25th of December.

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There appears to be unquestionable evidence that the cholera was introduced into New York by passengers from on board a foreign vessel, either actually labouring under the disease or strongly predisposed to its occurrence. To these passengers the disease was almost entirely confined; and notwithstanding its occurrence in a few persons in immediate contact, or in close proximity with the sick, would seem to prove that persons labouring under the disease may carry with them, or at least create around them, an atmosphere capable of propagating the disease to those who may be exposed to it; still, the spread of the disease was to a very small extent, and not the slightest suspicion of an epidemic influence was manifested. In New Orleans, the appearance and course of the disease were very different. There is no certainty that the disease was introduced into the latter city by the passengers from on board the Havre packet. The condition of the atmosphere at New Orleans was well adapted to the production of the disease. Cases of ordinary cholera of a very severe grade were common, and dysentery and diarrhœa prevailed to a considerable extent. Few of the inhabitants escaped some disturbance of the alimentary canal; there was a general tendency to excessive evacuations from the bowels. Now, although the first two cases which occurred at New Orleans were in persons from on board the Havre packet, whose passengers were strongly predisposed to disease, yet we think it more rational to suppose that it was developed in them by the morbific atmosphere of the city, than that these patients, who were immediately conveyed to the Charity Hospital should, in a few days, infect vast numbers in different parts of the city. In New Orleans, there is no evidence that the disease spread from individual to individual; on the contrary, it appeared simultaneously in different parts of the city, destroying in the space of one month twelve hundred and upwards of those attacked.

Notwithstanding patients affected with cholera have been introduced into nearly all the cities and towns on the Mississippi, and its main tributaries, and in a few of them many cases of the disease have occurred, still the epidemic has not spread. Nevertheless, in most of these cities the imported cases have been accompanied by others of domestic origin, indicating a disposition to cholera, which was probably checked by the occurrence of the winter season—marked by a continuance and degree of cold, and of wider extent, than had been experienced for many years previously. The severity of the winter in the south-western States has seldom been exceeded.

In February, the cholera was still prevalent, as many as fifty or

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sixty deaths occurring weekly. Towards the middle of this month the weather became unusually cold, and the general health of the western cities was improved. With the opening of the spring, the cholera again increased in extent, and accounts from nearly all the cities situated along the Mississippi, represent it as upon the increase. In different parts of Texas it appears to have been attended with a very considerable amount of mortality.

In connection with the present Report, the Committee present the following four communications.

The first, from Dr. Garrison, of Swedesboro, New Jersey, giving an interesting notice of the prevalent diseases in that neighbourhood, during the past year.

The second, from Dr. Wyman, of Cambridge, Mass., giving an account of the dysentery, as it prevailed in that place during the years 1847 and 1848.

The two others, from Dr. Fithian, of Bridgetown, New Jersey; the one, on the bilious fever as it appears in that State; and the other, on erysipelas of the respiratory mucous membrane.

D. FRANCIS CONDIE,
Chairman.

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B.—1.

On the More Prevalent Diseases of Swedesboro', N. J., and its Neighbourhood, during the year 1848. By Dr. J. F. Garrison, of Swedesboro', N. J.

At your request, I have thrown together some observations, concerning the diseases which are most prevalent in this region; our mode of treatment; its success, &c. I do not imagine that I can give you anything that is new, nor much that is interesting; but such as I have, you are welcome to.

Our district of practice is flat, sandy, and liable to no peculiar endemic disorders, excepting along the river shore, where intermittent fever prevails during the spring and autumn. Formerly, bilious fever, of both the intermittent and remittent type, was extremely common over the whole of this part of the country; but of late years it has occurred only occasionally in the autumn; the cases being few and scattered. In the fall of '45, the first year of my residence here, I scarcely saw a case; but in the next autumn ('46) it appeared very extensively all along the river shore; almost every family having one or more ill with it in some of its forms; there were a few cases back in the country, but only a very few. In the spring of this year (1846), there had been a series of very high tides, which had put all the meadows along the river under water; and, as some of the banks were very much broken, the water lay upon many of them nearly all the summer; in some cases stagnant and fetid; and, in almost all of them, caused the decay of large quantities of vegetable matter. What effect this may have had in the production of these cases of fever, I leave to the discussors of the doctrine of miasm. During the next summer, when the meadows had been better drained, there were fewer cases; and still fewer in the following year. In 1846, I saw 119 cases; in 1847, 88 cases, and in 1848, only 55 cases.

The mortality was slight; the disease generally yielding easily to the use of calomel purges and quinine, with occasionally, though

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very rarely, the use of the lancet. The cases which were fatal either commenced with the continued type, or had been suffered to pass through the intermittent stage before any attempt at arresting them had been made; they then became rapidly typhoid in their character. I lost three in 1846, two of whom had been bled in the early stage; and about the same proportionate mortality occurred in the other years, which sufficiently indicated the mildness of the disease. Our mode of using quinine did not differ from that which is ordinarily practiced; in no cases were the large doses, used at the South, deemed necessary or proper. In the spring of 1848, and the latter part of the winter of 1847, scarlatina ravaged terribly a portion of our district; the majority of the cases were in the section along the river; but I suppose this arose rather from the frequency of intercommunication between the inhabitants of this region, than from any other cause.

The disease was very severe, and the mortality great. I saw, during the time above named 139 cases, of which thirteen were fatal. My father had, under his care, quite a number of cases which I did not see—the exact number I cannot say. Of the cases which were fatal, some few died with anginose symptoms; the swelling of the throat being so great as to interrupt respiration and deglutition, and keeping up so violent a fever, that the patient's strength was worn out. Others died from the sequelæ, hydrocephalus, &c.; but the greater portion died very soon after the invasion of the disease, with a train of symptoms which seemed to indicate a high degree of malignancy; every case where they occurred, under my observation, with only one exception, terminated fatally.

These cases generally commenced (as, however, did many of the others) with vomiting and purging. After a few hours, or often at the very commencement of the attack, the head showed signs of being very much affected; the eyes were wild in their expression; there was a tendency to delirium; violent pains were complained of in some portion of the head, while the countenance had a very anxious expression; the pulse was very quick and frequent; 120 to 140; the eruption sometimes out fully; of a very unusually dark red, almost livid colour, when the skin was intensely hot; or the eruption was very slight when the skin was cool, and the patient constantly chilly. On looking into the throat, instead of finding the tonsils much enlarged, of a bright red, and ulcerated extensively as is usual, the whole of the pharynx, palate, and tonsils, were of a purple colour, or a very dark red, but little swollen, and having a pulpy appearance, with

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little or no signs of ulceration; the whole looking almost as if covered with a quantity of dark-coloured jelly. The cavity of the mouth and the tongue were also of a dark red colour, more so than ordinary; there was scarcely any swelling of the glands at the angle of the jaw; in some of these cases none. There were in some cases constant muscular twitchings of the limbs, and in some young children, convulsions; mostly in the commencement. The course of these cases was very rapid; in some cases death occurring in forty-eight hours, and in none being delayed longer than a week; the active symptoms being rapidly followed by coma, which was soon succeeded by death; no treatment seemed to have any beneficial effect on them. The peculiarity of these cases seemed to me to be, the early occurrence of head symptoms, accompanied by this peculiar appearance of the fauces, and the absence of swelling in the glands at the angle of the jaw. Of thirteen fatal cases, six had this character decidedly. The treatment was purging in the early stages, which had very often the effect of promptly checking the vomiting and purging. If the patient were able to use them, capsicum gargles were resorted to, or, when unable, capsicum was applied to the throat by swallowing; with cool applications when the patient could bear them, and cool acid drinks. In the anginose cases, this treatment succeeded well; but in the malignant cases, to which I have referred, it was useless; nor do I know of any other which promises any more success. The disease commenced and ended with the cold weather.

During the summer of 1848, dysentery prevailed among us quite extensively, in comparison with the few previous years; it was in many cases very severe, and the mortality great. I saw thirty cases in which the dysenteric symptoms were fully developed, and of these five died; in 1847 I saw but eight cases, of which one died; and in 1846 I saw only three cases, all of which recovered.

The treatment employed was bleeding, if the case was seen early, and the pain and fever were urgent. When bleeding was not required, and after its employment, a purge of 10 grs. of calomel, followed generally by castor oil, in some cases by Epsom salts; with mustard and warm applications over the bowels. Powders of ipecac. and calomel were then given, as much of the former as the stomach could bear, with ¼, ½, or 1 gr. of calomel, every two, three, or four hours, according to circumstances, and pills of opium, gr. i. in a pill, were given often enough to quiet the pain, and, if possible, check the discharges; if there were much straining and tormina, injections of

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starch and laudanum were used, and in the latter stages, blisters and astringents (acetate of lead was tried, but with no benefit); these cases all occurred in the months of July and August, excepting two in June, and one in September.

After an autumn and early winter of unusual good health, the influenza broke out among us about the middle of January; the first notice we had of it, was the occurrence of croup in several children at the same time; there were in all of them catarrhal complications, which had preceded the croup, and persisted after the removal of this latter; the croup yielded in every case to treatment, which did not differ from that which is ordinarily used, viz.: emetics of antimony or ipecac., the free use of calomel, and in one case, the local application of nitrate of silver. Since these initial cases, we have not had more of croup than is usual with us at the same season of the year, nor have any of the cases been marked by any unusual features.

Cases of influenza have been occurring in considerable numbers ever since then; these have been more often met with in those of middle age than is common in epidemics of this disorder, and not so much confined to the old and the very young, as was observed in some of its former visitations. It usually came on in one of two ways, either, first, as a gradual or more rapid aggravation of the symptoms of a preceding catarrh, or second, suddenly, with a chill. In either case it has usually been attended by great lassitude; soreness all over the body and limbs, sometimes such as to make the patients cry out if roughly touched; wandering pains, now in the side, now in the limbs, now in the back or head, often much complained of, and represented as very severe; tendency to soreness of the eyes, which were blood-shotten and often inflamed; generally considerable pain in the head, and brisk fever. Conjoined to these general symptoms, were those referable to disorder of the lungs; cough, at first dry and hacking, but generally succeeded by expectoration of sputa, light or streaked with blood, according as bronchitic or pneumonic symptoms predominated; the latter were by no means uncommon, being much more frequently met with than in ordinary seasons. Pleurisy was an occasional complication, more frequently met with in the last few weeks, than at an early period of the epidemic. Some of the cases, in addition to the pulmonic symptoms, were marked by those of great irritation and even inflammation of the bowels; pain, soreness on pressure, and diarrhœa. Sick stomach was present in almost every case.

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Our treatment has been, for the most part, the same as in the pulmonic affections which ordinarily occur among us, excepting that we have been compelled to use antimony with great caution, as very many patients were unable to tolerate it; even where the stomach retained it, it produced so much irritation of the bowels that we were forced to relinquish it in part, or entirely. We used the lancet whenever the severity of pain, or fever, or pneumonic symptoms seemed to require it, and with more of advantage than we had anticipated; as Dr. Watson, whose experience in this disease was considerable, expressly warns against the use of it. But our main stay was calomel, and after the first few days blisters, the former exerting a singularly good influence over the course of the disease. We gave it, in the first instance, as a purgative, either in combination with, or followed, after an interval of two or three hours, by some aperient or more severe purge; if the disorder persisted any length of time, after using it two or three times as a purge, we gave it in small doses, every three or four hours, and in every instance with the best results; we combined it as usual with ipecac., or, if the bowels were involved, with Dover's powder. I have never seen calomel more beneficial in any disease, than in the present epidemic; we could use it in every case where we could antimony, and in very many cases where there was no toleration of the antimony. Blisters to the chest and abdomen seemed to do much good in many cases, but not more so than in former instances of similar disease; we applied them earlier than Dr. Stokes advises, and we think with good effects. They seemed to us of use very often as early as the third or fourth day of the disease, but not so generally nor so signally useful as we found the calomel. Sinapisms, and large, warm poultices were often very efficient in relieving the pains of the chest and abdomen. We have as yet lost no one with the disease, though I have some under my care at this time, in whom I much fear a fatal result. I have seen about ninety-three cases.

The above are the only diseases of general prevalence which have occurred in our region during the past year; to go over the incidental cases, ever so cursorily, would be almost endless.

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B.—2.

An Account of the Dysentery, as it prevailed in Cambridge, Mass., in the years 1847 *and* 1848. By Dr. Morrill Wyman, of Cambridge, Mass.

Dysentery was epidemic in Cambridge in 1817. For the most part, it was then severe, and proved fatal during the months of August and September, in about fifty cases, thereby doubling the usual annual mortality of the place. Previously to this epidemic, no other had been observed of the same kind, for forty years. From 1817 until the summer of 1848, cases of dysentery occurred occasionally; but they were not severe, usually yielding readily to the common remedies for that disease. During the past ten years, but one case had proved fatal in the immediate vicinity of Harvard College, the field of the fatal epidemic of 1817.

This part of Cambridge is upon a sandy and gravelly plain, many feet in depth in most parts, deposited in a clay basin, the edges of which are observed in the hills at the north and west; and having an outlet in Charles river, which cuts it near its southern and eastern sides. The water taken from wells formed in the sand and gravel is uniformly good; that from the clay near the edges of the basin, is poor, and often offensive. The banks of the river are bordered by salt marshes, subjected to the movements of the tide; it was not observed, however, that the attacks of this epidemic were more numerous among those living in the streets nearest to the marshes, or, that the disease was more severe there.

The weather, during the two years above mentioned, exhibited nothing peculiar, so far as was noticed; nor did the seasons differ, in fertility, from the average of several which had preceded them. The indications of the usual meteorological instruments, are given in the appended tables. The observations were made at the Cambridge Observatory, which is situated within the district under consideration.

The disease first made its appearance, about the middle of July

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1847, and it was observed in this, as in many other epidemics, that it was most severe at the outset; and that the greatest number of deaths, in proportion to the numbers seized, occurred among the early cases. The attacks were most numerous in the latter part of August, and the first part of September; after which they diminished, but did not entirely disappear, until the approach of winter. During this year, dysentery seems not to have prevailed to any extent in the adjoining towns; a few cases only appearing, and those not severe. In May 1848, a case occurred, which was well marked, and protracted, but terminated in health; after which no new case occurred till the middle of June. From that time the predisposition was decided; the number of new attacks continued to increase till the first of September, when the epidemic may be said to have arrived at its height. After this, it declined rapidly, and no new attack occurred later than the first week in October. During 1848, dysentery was epidemic throughout many parts of New England, and in some places exceedingly fatal. It was generally remarked, that the cases in the larger cities were fewer, compared with the population, and less frequently fatal, than in the smaller, and less thickly settled towns. This seemed to have nothing to do with the greater or less distance from the sea coast, Boston being comparatively healthy, while Lynn, also on the sea coast, and but eight or ten miles from the city, suffered severely.

For the most part, chills were first experienced, followed by heat and thirst; and, almost immediately, diarrhœa made its appearance, which, however, although somewhat urgent, was not accompanied by severe pain. This diarrhœa continued a few hours only, when it gave place to small, mucous, and bloody dejections, attended with griping and tenesmus. No cases occurred in which there was not more or less blood discharged. The calls to stool were frequent, so often as once in thirty minutes, and sometimes oftener. A young man, a member of Harvard College, who was seized during the night of Sept. 5th, 1848, was found on the following morning with a pulse of 120, small, quick; skin hot and dry; great thirst, nausea, and vomiting; the evacuations as often as once in twenty minutes, small, painful, consisting of mucus and blood only. The pulse was usually above 100; the tongue dry, but not black, nor were the teeth covered with sordes. From the time the disease was fully formed, to its subsidence, fecal evacuations were not obtained, except by the aid of cathartics. In the first year, no round, hardened, fecal masses, or scybalæ, were observed, nor during the second, except in a few instances.

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The abdomen was more or less tender to the touch in all the cases, and in the severe and fatal ones, usually tympanitic, especially after the first week. In some cases, among children, the tenesmus continued throughout the disease, the discharges remaining mucous and bloody to the end. In such cases, prolapsus occurred, and the little patient may be said to have expired in the endeavour to force down still more of the bowel. In one instance, severe spasms of a tonic character made their appearance; all the muscles of the body remaining rigid for several minutes, during which the pain was excruciating. The exciting cause appeared to be the severe tenesmus. But by far the most common course of the disease in fatal cases, was continued frequency of the efforts at stool; febrile paroxysms for a time; the pulse becoming more frequent and smaller; the abdomen tender and tympanitic; nausea and vomiting; the mucous dejections giving place to those which were fecal, extremely offensive, with a copious discharge of flatus, showing that the inflammation had extended farther up in the intestine; sighing; a leaden color of the skin; coldness of the extremities, and death. During the decline of the disease, apthæ in the mouth were not unfrequently observed, but, unlike what has been noticed in some other epidemics of dysentery, they did not betoken imminent danger.

Of the sequelæ, rheumatic affections of the joints, attended with pain and swelling, especially of the knees and ankles, were most frequent. These affections continued, in some instances, several weeks, after all the other symptoms had subsided. Inflammation of the eye, with intolerance of light, was also not unfrequent, either alone, or with the rheumatic affection. The seat of the inflammation appeared to be, at first, in the sclerotic coat, and afterwards in the conjunctiva; its nature was believed to be the same with that of the other affections just mentioned. In one case, after the bowels had recovered their healthy action, as far as the frequency and appearance of the dejections were concerned, anasarca came on, with effusion into the thorax, and cavity of the peritoneum, speedily proving fatal. In few instances did the disease become chronic, or was it attended by the evacuation of true pus.

The treatment in the beginning of the epidemic, was that which had heretofore been found successful, viz., a cathartic, evacuating the bowels freely, followed by an opiate, either alone or combined with ipecac., which, with the repetition of the opiate on the following day, often put an end to the complaint. But subsequently such treatment was found ineffectual, and various changes were made. Bleed-

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ing, either from the arm, or by leeches upon the abdomen, or in the vicinity of the anus, were not followed by sufficient relief, in the few cases in which it was tried, to warrant its continuance. Emetics did not prove beneficial, and cathartics almost uniformly increased the tormina and tenesmus for the time, and were not followed by a diminution of other symptoms; they were, therefore, seldom used, except in the very commencement of a case which had not been preceded by diarrhœa. In fine, the only drug which could be depended upon for relief, from present suffering, or for future cure, was opium. It was administered in various forms, either solid or in tincture, or in some of the preparations of morphia, as the stomach or the rectum would best tolerate it. The quantity of the narcotic which was borne in severe cases without producing the usual signs of narcotism was truly astonishing. A young man, who had been previously in good health, took, at the commencement of the disease, in doses of one grain each, twenty-four grains of opium, in less than as many hours. A boy seven years of age, took nine grains of opium in twenty-four hours, in doses of one grain each, and, during the following two days, five grains of the sulphate of morphia, in doses of half a grain each. In neither of these cases, was more of the drug used than was necessary to quiet the pain, and increase the interval between any two consecutive evacuations, to one hour in the first case, and to a little more than two hours in the second.

The treatment which was believed to be most successful was, in the main, as follows: A dose of castor oil was first administered, unless diarrhœa had preceded. After two or three evacuations were procured by these means, a full dose of opium, in some of its forms, was given, sufficient to quiet the pain and tenesmus, and repeated each hour if the stools were so frequent, and, if they were not, after each stool. Enemata, of an ounce or two, of a thin mucilage of starch with a sufficient quantity of laudanum, were considered more immediately beneficial, when they could be borne. It should be observed, however, that they could not be borne in the severer cases, which may account for the greater apparent benefit. The cathartic was not repeated oftener than once in three or four days, and usually not as often. The diet, during the early part of the disease, was farinaceous, in a fluid form, afterwards weak chicken broth and mutton tea. Stimulants, wine, brandy and water, and especially bottled cider, were used, when the febrile symptoms had subsided, and the patient required support.

Although the narcotic treatment may not have arrested the dis-

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ease, it is believed that under its influence the inflammation of the bowel was less severe, and passed through its stages in a shorter time; and certainly with far less suffering to the patient, than under any other treatment which was tried. We believe that those practitioners in this vicinity, who have seen most of the epidemic, will readily join in the sentiment expressed, with regard to these drugs, near two hundred years ago, by the great English physician. "And here, I cannot but acknowledge with gratitude the mercy of Almighty God, the giver of all good, who has vouchsafed unto mankind, in its manifold affections, opiates; no other remedy being equally powerful for the subduing of many diseases, or for effectually extirpating them. Indeed, so necessary is this excellent drug, in the hands of a skilful person, that the Art of Medicine would be truly halt and maimed without it; and yet, with it, he who understands its virtues, shall bring about far greater cures than might reasonably be hoped for with any single remedy."—*Sydenham, De Dysenteria.*

CAMBRIDGE, *Mass.*, May 1st, 1849.

MONTHS.	Means of the Barometer.						Means of External Ther.				
	Sunrise.	9 A. M.	3 P. M.	Range.	9 P. M.	Monthly Mean.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Monthly Mean.
1847.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	°	°	°	°	°
January	29.962	29.945	29.907	.038	29.889	29.926	21.8	26.8	30.6	26.6	23.4
February	29.921	29.971	29.914	.057	29.927	29.944	21.5	25.2	31.2	25.7	25.9
March	29.902	29.890	29.851	.039	29.919	29.890	25.9	30.0	38.6	28.9	30.8
April	29.924	29.892	29.819	.073	29.892	29.882	34.7	44.1	50.5	38.8	42.0
May	29 952	22.957	29.921	.036	29.951	29.945	45.7	56.4	60.9	50.4	53.3
June	29.874	29.875	29.872	.003	29.874	29.874	58.1	66.8	71.2	62.7	64.7
July	29.950	29.957	29.924	.033	29.927	29.939	64.9	76.9	80.3	70.0	73.0
August	29.969	29.970	29.916	.044	29.965	29.958	61.7	70.6	75.5	64.6	68.1
September	29.922	29.955	29.889	.066	29.895	29.915	57.0	62.3	66.2	58.3	60.9
October	30.054	30.041	29.978	.063	30.032	30.026	40.7	49.2	54.6	46.2	47.7
November	30.009	30.011	29.990	.101	30.011	29.985	38.5	44.3	50.8	42.7	44.1
December	30.015	30.064	30.013	.051	30.023	30.029	30.9	34.7	39.0	34.4	34.8
1848.											
January	30.099	30.109	30.052	.057	30.045	30.076	25.4	27.4	33.9	29.6	29.1
February	29.843	29.877	29.794	.083	29.861	29.844	19.6	23.8	31.4	23.9	24.7
March	29.950	29.957	29.899	.058	29.962	29.942	26.5	33.2	38.4	30.7	32.2
April	30.009	30.035	25.959	.080	30.019	30.004	37.6	48.6	53.7	42.2	45.5

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Winds and Clouds.

MONTHS.	Force of the wind, 0—6.					Quantity of clouds, 0—10.					
1847.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Monthly Mean.	Sunrise.	9 A. M.	3 P. M.	9 P. M.	Monthly Mean.	Depth of rain in inches.
January	1.1	1.4	1.6	1.4	1.4	5.7	6.0	5.7	5.1	5.6	3.667
February	1.2	1.3	1.7	1.3	1.4	6.4	6.7	6.6	7.0	6.7	3.344
March	1.3	1.7	1.9	1.3	1.5	5.2	5.6	4.8	4.7	5.1	5.909
April	1.1	1.8	2.1	0.9	1.5	5.1	4.2	5.5	5.6	5.1	2.831
May	0.9	1.2	1.6	1.4	1.3	4.5	4.3	5.4	4.5	4.7	1.938
June	1.2	1.4	1.9	1.2	1.4	5.0	5.0	5.4	5.2	5.1	5.491
July	1.1	1.7	2.1	1.3	1.5	3.5	3.6	5.2	5.3	4.4	2.527
August	0.6	1.3	1.6	1.1	1.2	5.2	4.5	5.2	4.8	4.9	5.215
September	1.2	1.2	1.5	0.8	1.2	6.6	6.3	6.2	5.7	6.2	6.536
October	0.8	1.4	1.3	0.7	1.0	3.9	3.9	3.4	3.4	3.6	1.444
November	1.0	1.3	1.3	1.0	1.1	6.9	6.5	6.4	6.3	6.5	4.940
December	1.3	1.5	1.3	0.7	1.2	6.6	6.7	6.8	7.2	6.7	4.370
1848.											
January	1.1	0.9	1.2	0.8	1.0	4.7	5.0	6.0	6.5	5.5	2.888
February	1.1	1.0	1.5	1.0	1.1	4.2	3.9	4.8	3.8	4.2	4.
March	1.2	1.3	1.5	1.6	1.3	4.3	4.8	4.8	5.0	4.7	2.5
April	1.1	1.4	1.8	0.9	1.3	3.9	4.5	3.9	3.5	3.9	1.200

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B.—3.

On Bilious Fever, as it prevails in the Eastern portion of New Jersey. By Dr. J. Fithian, of Bridgeton, N. J.

In an able article in the *British and Foreign Med.-Chir. Review*, for April, 1848, upon the epidemic fever of England and Ireland, which ravaged that country to such a fearful extent, the author observes: "Intermittents have now-a-days become, to the profession at large, materials rather for medical history than for medical observation; it is a rare fact, in many places, to meet with a case." We wish we could say the same of this country: although the older and most cultivated parts of the United States, especially the New England States, may be said to be comparatively free from bilious fever; in the middle, and more especially in the southern and western States, it is the disease which, in some form, prevails yearly, and to meet which the physician is required to be well prepared.

This will continue to be the case here while the laws for its production are in full operation. Heat, moisture, and vegetable decomposition always have and ever will give rise to intermittents; and if England is now free from these forms of disease, it may be attributed to her thorough system of draining and cultivation; and when we too shall have the whole surface of our country teeming with an agricultural population, converting every pond, and swamp, and marsh, into a well-drained surface, we, too, may then say, and not before, that "intermittents have become materials rather for medical history than for medical observation."

It may now be said of many parts of the middle States, which have been the longest under culture, and of course better drained, bilious fevers of a remittent and intermittent type are much less common than formerly. The last year we have had more of it than for several years past, in fact since the great epidemic of 1820 to 1827. Those of us who have been long enough in the profession, will remember the wide-spread and severe bilious fevers, of every type, which ravaged the country at that time. For four years, viz.

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from 1816 to 1820, the country was remarkably healthy. An old practitioner told me, as a contrast, that he had known the time when every house in his neighbourhood for miles round had had one or more down with fever. Again the same state of things took place during the period above referred to, viz. from 1820 to 1827; there was scarcely a house in which one, and sometimes all, of its inmates were not confined by the disease. This was the case in the neighbourhood of Philadelphia, both in Pennsylvania and New Jersey, also in Delaware, Maryland, and further north and south. What peculiar causes could have been in operation to produce such a wide-spread disease is now, as it ever has been, hid from research. Conjecture, it is true, has attributed it to malaria or telluric or some other influence suspected, but this has not yet been proved.

Without running into speculations or theories that avail but little, except to show the ingenuity of their authors, from Sydenham down, we will allude to something of a more practical character—the treatment which we think best calculated to meet the disease.

It is unnecessary to go into a detail of the symptoms of the disease called bilious fever. They have been divided into intermittents, remittents, and continued fever; these again into quotidian, tertian, and other types—they are familiar to all—the question is with respect to the best treatment—I say the best treatment—for the treatment is as various as the schools, nay, almost as various as the individuals who treat the disease.

It has been regretted that physicians cannot agree upon some system which may be embraced by all, and acknowledged by all to be the best system. This will probably never be the case; principles founded upon pathological observations must first be received by all —in this consists the *science* of medicine, the *art* consists in the best method of applying remedies to carry out these principles.

One practitioner pursues a certain course, and his patient recovers; another prefers another and a different course, and his patient also recovers; another may leave nature to her own unassisted operations, and the disease will, in due time, subside. The first may, however, succeed by a course of treatment which will accomplish the desired object—viz. the recovery of the patient—by means much more efficient and better adapted to the end than the second, and the latter might by proper remedies have saved the patient from many dangers and sufferings, which would be the result if left to the recuperative powers of nature alone, even when the case terminates favourably,

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which I have no doubt that in a large majority of cases will be the case, if no treatment at all is pursued.

It is, undoubtedly, upon this principle that homœopathy is indebted for the success of its professors; but the question returns, is it not better to pursue a course of treatment which will produce the greatest and best results in the shortest time, and in the greatest number of cases.

We make these remarks from the variety of opinions which have been advanced and defended with great zeal and much ability, from the earliest records of medicine to the present day. In the time of Sydenham, a prescription would not unfrequently contain twenty-five or thirty articles from the materia medica, some one conflicting with another.

This lumbering practice has been laid aside, and the articles of the materia medica reduced to a very few to produce the desired result—of these, the most prominent for bilious fever, are calomel, antimony, neutral salts, quinine, and bleeding; these, with vesicatories, constitute the principal weapons with which the medical man may go forth to meet the enemy and conquer.

These remedies are all valuable when used with judgment and skill; my own opinion, from long observation, founded upon a pretty extensive acquaintance with the disease as it prevails in the middle States, is decidedly in favour of bleeding, as the most efficient of any one of the remedies above named.

When the bilious epidemic alluded to above, which commenced in 1820, came upon us, we were in the habit of bleeding, but with great caution, and only in the young and most robust cases. The principal remedy was calomel, both as a purge and an alterative. It was then customary to commence treating the disease with a purge of calomel and jalap, or some other adjuvant, this to be followed with nitrous powders, and again calomel purges, &c. &c. When the disease relaxed, and an intermission could be obtained, barks and serpentaria, or some kindred bitter (for the preparation of quinine was then unknown), was thrown in; the patient would recover under this treatment, but too often with his mouth sore from the effects of the medicine, and in too many cases as much time was required to cure the mercurial disease as the original affection; and the stomach would be rendered irritable, and the sickness too often distressing, from the effect of the remedy, or remedies. This state of things determined me to pursue some other course to fulfil the indications in the disease.

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Observing that in almost every case the system was unduly excited—the heart labouring, the pulse increased in rapidity and fulness, the skin hot during the paroxysm, even when moist, and the face flushed—bleeding was determined upon as the remedy best adapted to this state of things.

Let this be resorted to, not in a few ounces more or less, but *keep the vein open till the heart gives up*, and the patient complains of faintness, and even if syncope takes place so much the better. By applying cold water freely, he soon recovers, when he will experience immediate relief from all his distressing symptoms; the pulse will become more quiet and slower, the skin moist, the breathing freer, and every symptom milder.

Let this be succeeded by a purge of neutral salts, or salts and senna, or Seidlitz powder and salts; let the medicine unload the bowels by free evacuations, and the probability is, that if it is a continued fever, it will be converted into a remittent, and if a remittent into an intermittent fever, when quinine can be thrown in and the disease arrested at once; at any rate the disease will run its course much more safely, and be much less likely to be followed by obstructions in the viscera or inflammation of the brain and other organs. It is seldom that bleeding will have to be resorted to the second time; this may, however, be the case when the paroxysm comes on with violence, when the same course above related should be pursued.

To arrest local affections, cupping, bleeding, and fomentations must be resorted to, and after the inflammatory stage is passed, calomel may be advantageously resorted to as a deobstruent, especially if the liver shall be left in a diseased state; blue pill, however, as a milder application, will be generally preferable. If the above treatment shall be pursued in nearly every case, the disease will be rendered harmless, and the patient carried through with much less suffering than by either the purging, alterative, or expectant treatment.

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B.—4.

On Erysipelas, as it prevailed in the Eastern portion of New Jersey; with some Remarks on Erysipelas of the Respiratory Mucous Membrane. By Dr. J. Fithian, of Bridgeton, N. J.

Erysipelatous affections do not prevail in this neighbourhood yearly; for the last thirty years they have been epidemic but twice, viz. in the fall and winter of 1845–6, when they prevailed endemically along the river Delaware. I had alone forty cases; it was generally of an inflammatory type, affecting mostly the surface of the body; although in a few cases of a phlegmonous character, and fatal but in one case. Again this year, 1848, it has prevailed to some extent; especially wounds or ulcerations of any kind have been disposed to run into erysipelatous inflammation; although in many cases it has been severe, but one death has occurred from this disease so far as I know. The *treatment* in my hands has been of an antiphlogistic character; bleeding in many instances, when the patient is of a robust constitution, cathartics of a saline character, preceded by calomel from six to twenty grains, antimonials, and bland fluids for drink.

To the surface I have applied cloths with lead water and laudanum; in the more advanced stage, I am partial to the calamine salve. Blistering, according to Dr. Physick's plan, is a good remedy. Where the patient is of a relaxed habit, or the disease runs into a typhoid type, an excellent application is a decoction of Spanish flies in spirits of turpentine, 1 oz. of flies to 4 oz. spt. of turpentine, boiled in a Florence flask, or some glass vessel, in a sand-bath. Dilute with olive oil and with linen cloths wet with the decoction, cover the diseased surface. This remedy was introduced by Dr. Hartshorne many years ago, and from him I obtained it, and have been in the habit of using it since. It is adapted to many diseases of a typhoid character as a rubefacient.

There is a form of erysipelas that has not, so far as I know, been noticed by the profession, viz. erysipelas of the respiratory mucous membrane. My attention was particularly directed to this form of the disease from the following interesting case, which I will relate.

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Joseph Garwood, a mason, aged thirty, was attacked by what I supposed to be a common pleuritic affection, viz. chilliness and rigors, with pain in the side and chest, difficult breathing, cough, especially upon a deep inspiration; pulse full and strong, flushed face, and every symptom of violent pleuritic fever; he was bled three days in succession, his symptoms were much relieved by it, but he still suffered from great oppression.

At this period of his disease, his throat and fauces began to swell; deglutition became difficult, then impossible; his tongue enlarged, and was thrust from his mouth in front of his teeth about three inches; his upper lip thickened, the swelling travelled up over his face; his nose swelled, his eyes were shut up; his forehead and scalp then partook of the disease; as the disease advanced upwards, relief was experienced below; it ultimately went off down the back, and he soon recovered, and is now a healthy man.

It appeared to be what is termed the "travelling erysipelas," having its origin in the lungs, simulating pleurisy, passing outwards and upwards, and ultimately terminating in resolution.

If the disease, instead of making its way outwards, had extended inwards over the cavities of the body, we may conjecture that its effects would in all probability have been fatal. I subsequently had a case which I have no doubt was of this nature, which terminated fatally. Had I not had my attention called to it by the case just related, I should not have been led to distinguish it from an ordinary attack of pleurisy; but my mind being fixed upon the above case, I have watched more narrowly the diseases of the chest, and I think I have been enabled to distinguish the disease from the common inflammatory affections of the lungs. The case following will illustrate my views.

David Cooper, one of our most respectable citizens, of about fifty-five years of age, of a burly, robust constitution, a farmer, was attacked with chilliness and rigors, after a walk on a cold, damp day. A pain in his side followed; I saw him a few hours after his attack, and bled him freely, till he became faint; taking away, may be, thirty-two ounces of blood. He was immediately relieved, in fact, free from pain. I gave him a cathartic dose of medicine, which operated freely. Next morning, upon visiting him, I found him comfortable; cool skin, moist; no fever; in fact, to all appearance, clear of disease. I sat with him some time, engaged in cheerful conversation, and left him, supposing him convalescent. I had scarcely returned home, having been away from him not two hours, when a messenger rode up at

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full speed, saying that Mr. C. was taken so much worse that he could not speak. I rode immediately back, and found him suffering great pain in the left side of his chest; every breath being a grunt; he could articulate, but with great difficulty, a word at a time. I bled him again largely, till his pulse was nearly obliterated, but with little or no relief; he was blistered over the whole side; took calomel with jalap and cream of tartar as a cathartic; saw him again after dinner; no better; bled him again freely. Not being relieved by treatment that I thought ought to have that effect, I expressed my fears for the result to the family, and requested a consultation, and that his sons, who lived in the city, should be sent for; this was declined for the present. Getting no relief, in the evening Dr. Ashmead of Philadelphia was called in. He came next morning; by this time the disease had travelled over to the right side of the chest; the whole lungs were enlarged in bulk, the chest swelled out, and the air passages stuffed up, so that the respiration was very difficult, and the lungs but very partially inflated; the knees were drawn up, and his chin down, to relax the parts, the pain being very severe; the bowels or abdomen was also swelled, tender, and tympanitic; percussion was dead, heavy, and solid. Bleeding was again decided upon and performed with no relief; blisters and fomentations all gave no relief; he sunk under the accumulation of distressing symptoms, the third night.

This I judged to be an attack of erysipelas of the lungs, which spread internally, first involving the left side, then passing over to the right, extending over the peritoneum, and destroying life very rapidly.

The diagnostic symptoms are obscure, by which the two affections of ordinary pleurisy and erysipelas may be distinguished, when they attack the chest. I have thought the pain was less acute, although not less severe, in the latter, than the former disease; the former being a sharp, cutting sensation, the latter, what may be called a "big pain," large, deep, and heavy. The cough is, I think, less urgent in the latter; the expectoration less. Permit me to relate another case, which I judged to be erysipelas of the lungs, that terminated favourably, which will further illustrate my views.

George Mickle, a person of a good constitution, of a nervous temperament, aged above sixty-five, was attacked in December 1847, after having been exposed to a bitter cold day, with a chill and rigors, attended with a heavy, dull, but severe pain in the side; no disposition to cough. When I entered his room, I found him leaning over

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a hot stove, his hand on his side; the skin felt hot; the hair standing out rough, from the contraction of the cuticle; I feared another case like Mr. Cooper's. I had his feet put in a warm bath, the bed made warm, and he placed in it, with hot bricks around him. As soon as reaction took place, and his chilly sensations had nearly subsided, I bled him freely, till his heart gave up, and feelings of syncope followed. This I followed with calomel ten grs. and jalap and cream of tartar; twenty grs. of the former, and ten of the latter, in a little hot water, till free catharsis was produced. Next morning much better; but taking warning from the case above related, I blistered, and gave calomel and Dover's powder in alterative doses for three days, keeping his bowels freely moved every day. His system becoming mercurialized, and no return of his pain occurring, I left off the medicines, and a rapid recovery took place.

These cases will illustrate what I mean when I say, that the lungs may be, and are affected with erysipelas. The first case, of Garwood's, was, beyond all doubt, a case of this disease. It betrayed itself by its passing out, and passing off, *showing its colours*, and thus making itself known in its true character. The other cases, though hidden, are, I think, no less cases of the same disease; and I believe, if practitioners will keep themselves on the alert, they will be enabled more frequently to detect this peculiar species of inflammation, than they have heretofore done. That this disease does affect every organ of the body, internal as well as external, I have no doubt. I have long been of the opinion, that puerperal inflammation is erysipelatous inflammation. I was led to this belief from observing, not unfrequently, when the mother had puerperal disease, the infant would be affected very soon after birth with some form of erysipelas. I could relate some most interesting cases of this kind; and why not women immediately after parturition, when not unfrequently the parts are more or less lacerated, and always more or less contused; why should not these injuries be followed by a disease, which so frequently is found to follow wounds on the external surface? Especially, should we expect this to take place, when there is an epidemic predisposition, as there is occasionally, to attacks of this disease.

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REPORT OF THE COMMITTEE ON SURGERY.

In presenting their Report on the progress of surgery in our country, during the past year, your committee beg leave to state, that they have regarded the spirit of their instructions as limiting their retrospect to that period. They have also deemed themselves, by implication, advised to direct their attention especially to those subjects in which improvement is most *progressive*, at the *present time;* subjects which are *new* to the profession, or in relation to which new impulse has been given to inventive effort. For the purpose, also, of stimulating to useful research, they have selected those departments of surgical art in which improvement seems most to be demanded, and in which most remains to be accomplished.

In furtherance of their design, the committee followed the example of that of the last year, in issuing a circular letter, soliciting information in regard to any improvements in principle or practice, suggested or established, within the past year. Several interesting contributions have been thus obtained, furnishing useful material for the accomplishment of their task. They have also had recourse to the journals of the day.

The small amount of the required information, furnished from these sources, during the brief period which has elapsed since the last Report, will, it is to be hoped, justify the chairman of your committee, in presenting such results as may have fallen within the sphere of his own personal observation; and also authorize retrospection, in relation to such alleged improvements, as may never yet have been presented to the profession, though of date anterior to the past year.

The employment of anæsthetic agents, the introduction of which constitutes a new and remarkable epoch in the history of operative surgery, will of course command a portion of our attention. This topic, however, has no longer the charm of novelty, which added to the interest and usefulness of previous reports; nor has there occur-

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red, during the past year, anything calculated greatly to modify the decision of the profession, in relation to the efficiency of such agents, and the safety attending their employment. We may, however, perhaps, be able to present facts influencing our estimate of the *comparative value* of such agents, and our judgment in relation to their appropriateness in particular cases; facts, also, which may inculcate a salutary caution in regard to their use in certain conditions of the system, and indeed, in many cases of trivial necessity.

There is probably no department of surgical art which more needs cultivation than that which relates to fractures and dislocations of the bones of the extremities. There is certainly no department of practice, the results of which bring so much opprobrium upon the profession. We shall felicitate ourselves, therefore, if we should be able to adduce anything which may give impulse to improvement in this department.

The operations performed for the removal of the urinary calculus, inasmuch as some of them rank among the most important of modern improvements, though their relative value and adaptedness to particular cases is not yet unequivocally established, will command a portion of our space.

For similar reasons, we shall devote a proper share of attention to orthopedic surgery, a department in which the operative expedients, so boldly resorted to, are still further from having established their real value, and which are at this time exerting rather an equivocal influence upon the character of our art.

These leading topics will not, we trust, divert our attention from others, in relation to which useful suggestions may have been made.

It will be remembered, that anterior to the session of the last convention, chloroform (the perchloride of formyl, of Liebig) had succeeded sulphuric ether, as an anæsthetic agent, and had already begun to be extensively employed. No sooner had it been tested than its superior power was universally admitted, as well as the facility and comparative comfort of its administration. These advantages would have caused it at once completely to supersede ether, but for the occurrence of certain discouraging results. Even then, great alarm had been created in the public mind by the fatal consequences attending its administration in four or five cases, two of which were noticed in our own country. Notwithstanding these adverse facts, within the past year the use of this remarkable agent has been extended throughout the civilized world, and the instances

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of its employment are too numerous to be sought out and accumulated in the most voluminous statistics. As its use has been extended, however, its disastrous effects in particular cases have been, from time to time, repeated, and of course have exerted a powerful influence on the public mind, in regard to the trial of its protecting agency, and on the profession, in regard to its comparative value, and the safety of its general employment.

From the first introduction of chloroform to the present time, there have been reported no less than fifteen striking cases of death, regarded as plainly attributable to the administration of this agent. The effect of these disasters has been the more painful and discouraging because, in some of them, the agent was administered under circumstances of trifling necessity, so as apparently to justify the imputation of rashness in the employment of so powerful an agent.

It will not, I presume, be deemed expedient that we should transcribe the reports of these cases into our report. They may be seen in a little volume just published, from the pen of Dr. John C. Warren, of Boston, the distinguished president of this association, collected from various foreign and domestic journals.

Although other anæsthetic agents have been proposed, and, to some extent, tested—as the vapour of aldehyde, chloride of hydrocarbon, nitrate of ethyle, bisulphuret of carbon, and the iodide of methyle—yet none of these agents are like to come into use. Sulphuric ether and chloroform are the only agents which contend for the confidence of the profession, and it is exceedingly important that such confidence should be justly awarded. This can only be accomplished by a careful observation of facts.

It is a rational inference, that any agent, sufficiently powerful to render the living system insensible to the pain of a severe surgical operation (lithotomy, for instance), must exert a tremendous influence upon the vital powers. It is by virtue of this counter-impression that its remarkable effect is accomplished. Is it not rational, also, to suppose that such powerful impressions will sometimes be injuriously exerted, and that that which is so powerful for good, should occasionally be equally so for evil? This must be true, if these agents be at all analogous to other articles of the materia medica.

The most powerful anæsthetic agent, then, we may expect to find, like all other active principles, the most capable of mischief when incautiously employed, or used under unpropitious circumstances. It is not at all probable, therefore, that we shall ever discover an agent of power sufficient to accomplish these surprising results, that

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will not sometimes overwhelm the powers of life. It is also presumable that the agent which most promptly and completely induces insensibility, will exhibit in its effects the greatest number of immediately fatal results.

Chloroform is, undoubtedly, by far the most powerful anæsthetic agent, and least annoying in the act of its respiration. Facts would seem to show that, in about the same proportion, it has been more productive of fatal results. Sulphuric ether, however, is by no means the innocuous principle which some have fondly believed it to be. We all distinctly remember the distressing, though not fatal, effects which in some instances resulted when ether was first introduced as an anæsthetic agent in Boston, and the position which a portion of the dentists of that city, and of the medical profession, assumed in relation to it. Dr. Warren admits that there has occurred one well-attested case of the fatal effects of ether. He also admits that from five to ten cases are on record in which fatal results have more remotely followed its use, and in regard to which there is some reason to accuse the agent.

The first instances in Baltimore, of the employment of sulphuric ether in operative surgery, occurred in the practice of the chairman of this committee. It was administered by a gentleman from Boston, with the aid of an apparatus which had been often used in that city, to two patients who underwent the operation for the removal of the sequestrum in necrosis. In neither instance was its anæsthetic influence complete, and in both there resulted great perturbation of the vascular and nervous systems, characterized by delirium, and a pulse of 140 per minute. Both patients remained in a doubtful state, in regard to recovery, for forty-eight hours. In another instance, in which the same surgeon employed this agent in the amputation of the female breast, an unusual degree of irritative fever followed the operation, resulting, after some twenty days, in fatal consecutive abscess of the right pleura.

We believe that deleterious effects of ether are less clearly chargeable to this agent, because they are more remote, and therefore likely to be referred to other causes. The fatal effects of chloroform being almost instantaneous, are referable to nothing else. The *post hoc propter hoc* here strikes the mind with irresistible force. There are probably many articles of the materia medica which, unhappily administered, occasionally determine fatal results with as much certainty as chloroform; but their effects being less immediate, and

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blended with the symptoms of disease, are inappreciable to the common observer.

It must also be borne in mind, in comparing the safety of chloroform with that of ether, that the former agent has been employed much more extensively than ether, though of more recent discovery and application. The use of ether had scarcely become general before it was superseded by the discovery of Mr. Simpson, and at this time the reported cases of its employment are twenty-fold more numerous than those of the employment of ether.

He who fixes his attention exclusively on the fatal cases from chloroform, without adverting to the vast number in which it has been employed, is very naturally filled with alarm. But when we consider that this agent has probably been administered to millions of subjects, and that only fifteen cases of death from its use can be adduced, the individual who subjects himself to its influence ought to feel no more apprehension than he who takes his seat in a railroad car, and much less than one who essays a voyage across the Atlantic.

But there is another consideration, still more consoling to the timid. The tables furnished by Prof. Simpson, and by M. Malgaigne, showing the comparative mortality of surgical operations in the British and French hospitals, with these agents, and *without* them, conclusively show, that the mortality is decidedly greatest, where no such agents are employed. If this be correct, then has the employment of chloroform preserved a hundred lives where it has sacrificed one. From this we may also infer that the more efficient the anæsthetic agent, the more effectually will it sustain the patient against the causes which determine the more frequent deaths where no such agent is employed.

Dr. Warren, in the little volume already alluded to, advocates the use of the *chloric ether*, as an agent, safe in comparison with chloroform, and more available than sulphuric ether. This article, however, he is aware, is nothing more than chloroform, largely diluted with alcohol. Alcohol, however, in combination with sulphuric ether, has always been regarded as a mischievous *impurity*, and we were instructed to wash it from that fluid, with great care. Many of the unpleasant effects of ether were ascribed to its accidental presence. From this we should anticipate, that it could not happily modify the effects of chloroform. It can only modify its effects by diluting the vapour of chloroform with that of alcohol; but it is the general conviction, that nothing so happily dilutes

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these agents as common air, and it is quite certain that many of the unhappy results from chloroform, are attributable to a neglect of its due admixture with air.

We are indebted to Dr. Warren for his reports of cases illustrating the effects of chloric ether, but we believe that chloroform, undiluted with alcohol, would have been equally successful in the hands of one so judicious and well informed. The experience of many surgeons in America has been even more conclusive, in regard to the safe and efficient use of chloroform, than that of Dr. Warren, in regard to ether.

Dr. Paul Eve, the distinguished Professor of Surgery, in the Medical College of Georgia, furnishes a table of fifty-four cases, in which chloroform was exclusively employed, with the most gratifying results. Four of these cases were of lithotomy. In some the anæsthetic influence was insufficient, and in others too profound; but nothing otherwise untoward occurred.

The chairman of this committee has administered chloroform to the degree of complete insensibility, no less than thirty-five times, to one individual, a delicate lady, in a case of periodical tonic spasm. Nothing unpleasant has resulted in any instance, further than occasional temporary, nervous prostration. The same individual has had recourse to this agent, in operative surgery, about fifty times; in all instances without any untoward results.

In a recent case of lithotomy on an idiot, a powerful young man, the operation could scarcely have been accomplished without its aid, owing to his determined resistance. He was rendered perfectly manageable by its use; no shock resulted, and his recovery was accomplished in two weeks.

Prof. Mott, although foremost in the bold enterprises which have distinguished American surgery, does not hesitate to declare, that he has recently successfully performed operations which he would not have hazarded without the aid of this agent.

Professor Parker, of New York, informs us that he decidedly prefers chloroform to ether. "The action of these two agents," he says, "is, I think, similar, but they stand in the relation of laudanum and paregoric to each other."

Professor Mussey, of the Medical College of Cincinnati, informs us that he has employed the chloroform in a hundred cases, without witnessing a bad result in a single instance. He decidedly prefers it to ether.

Dr. D. M. Reese, resident Physician of the Bellevue Hospital,

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generally dreading too profound anæsthesia from pure chloroform, employs a mixture of chloroform and ether, equal parts. Occasionally, however, he has been compelled to have recourse to the pure chloroform, before sufficient insensibility could be obtained. He has witnessed no disastrous consequences from its use.

Professor Gilbert, of Gettysburg, also employs a compound of these agents, but in the proportions of one of chloroform to seven of ether. His practice is founded on the belief, that chloroform is a sedative agent, and ether, stimulating. His experience in its use has been happy.

We should state that Prof. Knight, who is associated with us on this committee, does not fully concur with us on this point, preferring ether as an anæsthetic, dreading the too powerful effects of chloroform.

But our limits will not permit us to collate the reports, which on this subject, teem in the periodicals, both domestic and foreign; and we have been obliged to omit the names of many, who have signalized themselves in this department of surgery.

Contemplating all the facts which, in relation to the use of anæsthetic agents, have been contributed during the past year, your committee congratulate the Association, on the great progress which has been made, in establishing professional and public confidence in these extraordinary agents, and on the vast benefit, which is likely to result to mankind, from this achievement of science and humanity. To them the recorded experience of surgeons, at home and abroad, appears abundantly to justify the following conclusions.

1st. The means of generally rendering patients insensible to the pain of surgical operations, so long a desideratum, have at length been furnished in the anæsthetic agents sulphuric ether, chloroform, and chloric ether.

2d. The employment of these agents for obviating pain in most severe surgical operations is now not only justifiable, but the imperative duty of surgeons; and, indeed, we may almost adopt the language of Prof. Miller, before the *Medico.-Chirurg. Soc.* of Edinburgh, that "no one among his surgical friends, would deem himself justified, morally or professionally, in now operating upon a patient in a waking and sensitive state."

3d. Of the anæsthetic agents, chloroform is decidedly the most efficient and facile of respiration; but, being most powerful, is, at the same time, most dangerous, when incautiously employed.

4th. In formidable and painful operations, chloroform not only

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obviates pain, but contributes to the safety of the patient, by preventing shock, and the irritation which is the antecedent and to a certain extent the cause of inflammation.

5th. The use of chloroform is inadmissible in trivial cases, because the danger from its use is greater than that from the operation. All must admit that, of the two objects to be held in view in a surgical operation, safety and immunity from pain, the former is the more important.

6th. In regard to circumstances under which chloroform should be employed, we adopt the conclusions of the French Academy. "It should not be used when there exists any disease of the heart, any aneurism near the heart, any threatening dyspnœa, any tendency to engorgement of lungs or brain. Care must be taken that, during the inhalation, atmospheric air be sufficiently mixed with the vapour of chloroform, and that respiration be carried on freely. The inhalation should be suspended as soon as insensibility is obtained."

7th. The best vehicle for the administration of chloroform or ether, is a handkerchief or sponge of loose texture, through which the atmosphere may be copiously inhaled.

It will be observed that, in relation to the uses of these agents, we have been compelled to controvert, to some extent, the opinions of a distinguished individual, to whom the profession is greatly indebted for the sagacious judgment with which he at once adopted these agents, and the zeal and industry with which he has made them known to the profession. We are confident that our remarks will be received in the same spirit with which they are urged, an earnest desire to elicit truth, which we know is often struck out by the collision of adverse opinions. We could not, if we would, detract from the renown of a name "clarum et venerabile nomen," which is identified with the professional reputation of our country, and which is now culminating in the third generation.

Very recently, if not within the last year, a new, and remarkable material has been furnished to the profession, for the mechanical treatment of fractures. The Gutta Percha, to which we allude, possesses a property by which, when immersed in hot water, it becomes as plastic as wet paper. On cooling, it instantly recovers its firmness, which is almost equal to that of horn, retaining whatever form may have been impressed upon it when warm.

This property will, at once, suggest to any one who has employed

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the starched bandage, the usefulness of the article, in the formation of moulded splints. We have, however, searched the communications of our correspondents, as well as the journals, in vain, for any reports of its use by *American* surgeons. Another year may furnish interesting facts in relation to it. We have ourselves employed it with great satisfaction in fracture of the patella and of the leg. Prof. Wiltenberger, of Baltimore, is now employing this form of splint in treating a case of ununited fracture after resection. He informs me that it accomplishes the mechanical purpose with beautiful precision. Of its usefulness in treatment of club-foot, we shall speak under another head.

Prof. C. A. Pope, of the St. Louis University, in an interesting communication with which he promptly responded to our circular, informs us that, in the treatment of the fractures of children, he employs, with happy results, as a substitute for paste and dextrine, the solution of gun cotton in ether, termed collodion. A strip of lint, he says, saturated with it, makes a convenient splint.

The same gentleman informs us that he has tested the apparatus of Jarvis for reducing fractures and dislocations, and found it not to answer his expectations. Our other correspondents are silent in regard to it, but our own experience in regard to it, precisely accords with that of Prof. Pope. In the treatment of fractures, it manifestly furnishes inadequate support. In dislocations it hinders those manipulations by which the surgeon avails himself of the muscular forces which are so powerfully concerned in *effecting* dislocations, and in *reducing* them. How often have we seen a slight force, employed with scientific tact, effect the reduction of luxations which had resisted the most violent traction! Whatever improvements may hereafter be made in this department, will be accomplished, not by the invention of new machinery, but by studying well the mechanism of the muscles and joints.

Prof. March, of Albany, has furnished to your committee a description of a very interesting piece of mechanism, the use of which he witnessed in the hand of Malgaigne, the inventor, for maintaining apposition in those oblique fractures of the tibia in which the superior fragment obstinately tends to overlap and ride the inferior. A full description of the instrument and its application would occupy too much space for our report, and will, we trust, be rendered unnecessary by its early publication through another channel. Suffice it here to say, that it is composed of a plate of steel, of arched form, secured to the splint, over the fracture. Through the summit of the arch

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passes an acutely-pointed stiletto, made to act with a screw. This pierces the soft parts, and, encountering the bone, is made by the screw to force it downward into place. Prof. March informs us that no evil resulted from the slight puncture of the soft parts, or the continued presence of the stiletto, and the purpose of the instrument was satisfactorily accomplished. Prof. March has employed, with perfect success, this retentive apparatus of Malgaigne, in a case of compound fracture of the leg, in which three inches of the tibia were denuded, and where there was obstinate tendency to displacement.

Prof. Daniel Brainard, of Rush Medical College, Chicago, has furnished us with an interesting "Case of Ununited Fracture of the Femur, successfully treated by Resection, and retaining the ends of bone by means of Wire." The operator denuded the false joint, effected the resection with the chain saw, and over each end of the bone passed a piece of silver wire, doubled and twisted, so as to encircle the two bones. "The ends of the wire were then twisted together with sufficient firmness to prevent movement, without exercising much pressure on the surface of the bones." The case resulted happily; union being effected, though with considerable shortening. Although we approve of the expedient, and admit that it may have aided, we do not conceive that the inference is necessary that the wire mainly *effected* the union. Many similar results would be necessary to establish a precept.

The chairman of your committee here begs leave to present to the convention an apparatus for the treatment of fractures of the lower extremity, which he has employed, for the last twenty years, with, as he believes, the most gratifying results. In its present form, no publication of the instrument has been made, and therefore we trust no apology is necessary for its introduction in this report.

In devising this apparatus, three important indications were held in view: 1st. To furnish a support to the whole inferior surface of the limb, accurately adapted to its forms, so that there shall be no galling pressure, productive of suffering and of muscular contraction. 2d. To suspend the member in the apparatus by a single cord, of considerable length, so that it should obey all the accidental and necessary motions of the body, thus obviating all strain at the place of fracture. 3d. To effect extension by a gentle and uniform traction applied to the apparatus, which grasps the whole member.

As the apparatus is subjected to the examination of the Association, minute description will be unnecessary. It is composed of a thigh portion and a leg portion, united by a kind of hinge, which

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allows their angle of union to be varied. Each portion is composed of wooden side pieces, united by bows of iron beneath. The thigh and leg rest on slings attached to the side pieces, and capable of being adjusted perfectly to the shape of the limb, which nowhere touches the skeleton of the apparatus. The foot is received into a shoe, which is attached by an adjusting thumb-screw to a metallic plate, which unites the ends of the side pieces of the leg portion. The shoe may be rotated outward or inward, and the toe elevated or depressed, by touching the thumb-screw. There is mechanical provision, at the knee and at the foot, for shortening or elongating the apparatus. Injurious pressure in the perineum is obviated by appending a movable, padded, crutch-like piece, to the inner and upper extremity of the thigh portion.

A metallic, padded hip-piece, also movable, is appended to the upper and outer extremity, through which the apparatus is attached to the trunk by a strong band.

The foot is secured by lacing the shoe; the leg is confined in the splint by its own weight, and by a bandage. The thigh is covered by a flexible splint of wood, padded above the patella. The whole is suspended to the ceiling, or tester of the bed, by a single cord, attached below the knee, near the centre of gravity of the limb and apparatus. The cord ascends with slight obliquity from the trunk, so as to make gentle traction on the limb.

It is obvious that, by adjusting the bands on which the limb rests, perfect equality of support may be furnished. The suspension by a single cord allows the member to yield to the slightest tendency to motion in the trunk, and thereby obviates all strain at the place of fracture. The obliquity of the cord effects the extension, the whole apparatus grasping the limb.

The overlapping and shortening of the fragments, in fractures of the femur, is more attributable to the sliding downward of the body in the bed, to which there is always a tendency, and the jamming of the upper fragment upon the lower, than to the contraction of the muscles. This is entirely obviated by the suspension, the apparatus yielding to the movement. Patients, indeed, in this apparatus, can vary their positions at will, obviating the tedium of one unvarying posture, the production of bed-sores, &c. &c.

This apparatus is applicable to all fractures of the lower extremity from hip to foot. In fractures of the neck of the femur, the hip-piece identifies it, in regard to motion, with the trunk. Prof. Geddings, of Charleston, has tested its usefulness in this fracture,

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in a case in which its employment effected bony union within the capsule. (*American Med. Journal*, Vol. XIII., *N. S.*, p. 248.)

In fractures at, or below, the middle of the leg, the thigh portion may be removed.

This apparatus is now almost exclusively employed in Baltimore, and in the State of Maryland. It has also, to some extent, been introduced into the Army and Navy. On shipboard it has been found to obviate completely the suffering caused by the rolling of the vessel.

In support of our statement in regard to the necessity for further improvement in this department of our art, we would call the attention of the Association to the Fracture Tables of Prof. F. H. Hamilton, of the University of Buffalo, illustrating the results of treatment in cases of fractures, and demonstrating, to use the words of the author, that "we are far from having attained perfection in the treatment of this class of accidents."

These tables embrace 136 cases, collected from various sources, including nine managed by empirics. Twenty or thirty of the instances of fracture were observed in the persons of medical students, and they "being generally from the better classes, it is presumed would have received the best treatment which the country could furnish." The results are sufficiently humiliating, and will perhaps surprise even those who have not formed a high estimate of the resources of our art. For instance, only two cases of fracture of the shaft of the femur, out of fifteen, occurring in adults, have resulted without deformity. Of twenty-two cases of fracture of both tibia and fibula, seventeen are imperfect. Of thirteen instances of fracture of both radius and ulna, six are imperfect. Of fourteen cases of fracture of the humerus, no less than nine exhibit imperfect results.

These statistics, though they may impair confidence in our art as at present exercised, will certainly accomplish good. In forensic medicine, it is of great importance to know what may be reasonably expected from the appliances of surgery, in this department. So large a proportion of unfortunate results cannot arise from ignorance on the part of the practitioner, but, in many instances, from the difficulties encountered, and the insufficiency of the means as yet devised to overcome them. Prof. Hamilton expresses to your committee the hope, that a fair exposition of the usual results may protect some unfortunate brother from a prosecution for mal-practice; instances of which have become alarmingly frequent in his State.

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If we mistake not, very erroneous statements have generally been made before courts of justice, in regard to what should be expected and required of surgical art, in the management of fractures, exerting, of course, a most unhappy influence upon the interests of the accused. If the results in the practice of those who make them, could be properly investigated, they would have the poisoned chalice, prepared for another, commended to their own lips. With these, and similar tables before us, our testimony will at least secure the administration of justice. The profession should feel exceedingly indebted to Dr. Hamilton for his labours in this department.

In the treatment of dislocations, we have acquired exceedingly important adjuvant means, by the introduction of ether and chloroform. In reducing difficult luxations of the hip and shoulder, it is not alone to obviate pain that we resort to them. They are employed to overcome the resistance of the muscles, and may be expected to render practicable the reduction of dislocations, otherwise impossible. No surgeon should ever attempt the reduction of a dislocated hip, without resorting to the aid of one of these agents. Though the objections which some make to the use of chloroform in operations with the knife should be established, yet would its use be justifiable in such dislocations.

Dr. Reese, of the Bellevue Hospital, reports the most happy results from the employment of the anæsthetic agents in this department of operative surgery.

The chairman of this committee would here submit to the approval of the Association, a method for many years practiced by him, for the reduction of dislocations of the shoulder. Its peculiarity chiefly consists in the application of the counter-extension to the opposite wrist, extension being made from the wrist of the dislocated member. Steady traction from the two wrists, in the horizontal direction, will be observed immediately to erect the head, neck, and chest, and to restore the symmetry of the two sides of the body. This at once calls to our aid the action of numerous muscles. The object of counter-extension, is, of course, to fix the scapula of the injured side. Traction from the opposite side most effectually does this, first, by erecting the spine, which otherwise yields to the extension, and, more directly, by communicating support to it through the clavicles which in front fixed the two scapulæ together, and behind through the muscles and tendons, which effect the same on the back. Support one scapula and you necessarily sustain the other.

We accomplish reduction, in many instances of dislocation into

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the axilla, by simple traction, for a few minutes, from the two wrists. In difficult cases we place the patient on a chair, pass a band (sheet or towel) over the top of the scapula and tie it beneath the chair. The knee of the surgeon is then placed in the axilla, and traction is made steadily from the two wrists, till the muscles are observed to yield, and the head to be disengaged. Then the surgeon directs the arm to be depressed, while at the same moment he urges his knee into the axilla by extending his foot. We have succeeded thus in cases of two months' standing, and where other methods in judicious hands have failed. Indeed, we now practice no other method.

In the practice of orthopedic surgery, very important adjuvant means have been furnished by the introduction of the gutta percha. In the Baltimore Infirmary we have practiced, after section of the tendo-Achillis, as follows: A wooden sole is provided, like that of a shoe. An iron rod is secured to this at right angles, so as to ascend along the outer side of the leg, and is padded. Around the margin of the sole, except at the toe, a broad piece of the gutta percha is nailed. The gutta percha being softened by plunging the shoe into hot water, the foot is firmly applied to the wooden sole, and the gutta percha moulded to it with a bandage. As soon as it is cold, the iron rod is pressed up to the side of the leg and secured. This apparatus is of course to be replaced, at proper time, by the mechanical shoe.

Prof. Pope, of St. Louis, informs us, that, "in the mechanical treatment of club-foot, the best apparatus, by all odds, is that of Charrière." In the three years that he has employed it, his cases have comparatively given him no trouble.

Prof. Gibson, of Richmond, in response to our circular, speaks very judiciously in regard to the importance of the after mechanical treatment, in cases of tenotomy for club-foot. The only cases in which he has not succeeded satisfactorily, have been those which have been removed from his observation.

The chairman has it in his power to refer to a case of tenotomy, for club-foot, which illustrates the effects of the operation performed in infancy, upon the ultimate, complete development of the member. The first instance of the section of the tendo-Achillis for club-foot in America, occurred in the case of the infant child of the Rev. Mr. Hamner, of Baltimore, and was performed by the chairman. Dr. Reese, in his notice of this case, in the *Surgical Dictionary*, commits an error of one year in the date. The subject is now a

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young lady; the foot and ankle are perfect in form, position, and strength.

Dr. Bigelow, of the Massachusetts General Hospital, has furnished us with an interesting article on the employment of a new agent, the gutta percha, in the treatment of strictures of the urethra. He employs it for the purposes for which wax and other impressible materials have heretofore been used, to determine, with precision, the form, size, direction, and other characters of the stricture. Its usefulness for this purpose is founded on the singular property, by which it receives an accurate impression at a temperature quite comfortable to the skin, and retains it perfectly at the temperature of the body. He employs it thus: A bougie of this material is oiled, then its point is passed to and fro rapidly, in the flame of a candle, till the nail will indent it. If it be now quickly passed down to the stricture and urged against it, with a force equal to an ounce or two of weight, and then allowed to cool during three or four minutes, it will retain, when withdrawn, a perfect impression, thus furnishing to the operator information, which will give precision to the mechanical means subsequently resorted to.

Dr. Bigelow also avails himself of the plasticity of this gum, in dilating the stricture. For taking impressions, this use of the gutta percha is original and ingenious, and we are confident it will be adopted. The chairman of this committee has, however, found the gutta percha, when softened by the temperature of the body, too yielding for the general purposes of a bougie. Dr. Bigelow relates several cases, which happily illustrate the usefulness of the material.

Professor Brainard, of Rush Med. College, Chicago, has supplied an interesting article on puncture of the bladder, for retention and what he terms, "Extraduction of the Bougie." In a case irremediable by other means, Professor B. punctured the bladder above the pubes, with the long-curved trocar, in the ordinary way. As soon as the state of the parts would permit, attempts were made to restore the natural canal from without, but without success, when it occurred to the operator that, as he now had access to the interior of the bladder, he might trace the canal from within, through the prostatic and membranous portions. The canula being withdrawn, he introduced into the puncture a small-sized bougie, stiffened with a wire, and curved to form a segment of a circle about a foot in diameter. It was easily conveyed into the urethra, and passed, with little difficulty, the obstacle which had been insurmountable in front. The point of the bougie having been conveyed to within two inches

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of the orifice of the urethra, was seized with forceps; the wire was withdrawn from the other extremity; the point was then drawn out of the urethra, the open end being allowed to enter the bladder, and for a time to remain.

This expedient strikes us as original and ingenious, and highly creditable to the operator; but the need for recourse to it will rarely happen, as the absolute necessity for the puncture of the bladder rarely occurs, in the hands of judicious surgeons.

In lithotomy, Prof. Mussey gives preference to the bi-lateral method, having performed it in no less than eighteen cases.

The chairman of your committee begs the indulgence of the Association, in submitting an instrument, in its present form, not yet made known to the profession generally, which he has used in all his cases of lithotomy, for the last fifteen years, amounting to about fifty in number. The instrument is composed of a grooved staff, a cutting director, and an index. The staff is a strong, silver canula, with a fenestrum, slightly spiral, cut out of it, for the entrance and passage of the knife. The cutting director is a piece of steel, of arched form, hinged to the staff near the handle. The lower extremity terminates in a knife-like point, which has a groove in its back. This is raised by the hinge, so as not to hinder the introduction of the staff, but, when depressed, enters with never-failing precision, if well made, the groove of the staff cutting its way through whatever is interposed. The index is a bead of silver, which slides in the groove of the staff. It is concave toward the handle, and there is a slender steel wire attached to it, which traverses the groove, and ascends through the handle. The knife employed, has a scalpel-like blade, forming a very obtuse angle with the handle, and a gorget-like beak.

In employing the apparatus, the staff is introduced; the cutting part of the director carefully adjusted over the angular space between the bulb and crus of the penis, and, being pressed firmly down, cuts its way into the groove, where it becomes steadily fixed. The back of the knife is now applied to the groove in the director, and, carried forward, enters the groove of the staff. Being still farther advanced, and inclined more horizontally, it cuts its way along the groove through the membranous portion, and through the prostate, into the bladder, the index giving evidence of its safe progress.

The inventor claims for the instrument, that with it the incision is performed with precision, safety, and dispatch. The incision, being accomplished by one thrust of the knife, is a clean and simple one,

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involving the least possible lesion of the parts. The instrument might easily be so modified as to perform the bi-lateral operation with the same facility.

We have the pleasure to state that Prof. Gibson, of the Medical College of Richmond, has recently employed this instrument. In relation to it he writes thus, and in terms perhaps too flattering:—

"I consider your instrument the best and most complete of all surgical appliances, and regretted very much that I could not use it in all three of the cases I have mentioned, but it was too large for the last. It ought to be generally known."

Dr. Theobald, of Baltimore, has also employed the same apparatus in two cases, and reports in the same terms in regard to its usefulness.

Dr. Twitchell, of New Hampshire, also informs us that he has employed it with entire satisfaction.

Professor Mussey, of Cincinnati, in a communication with which he has favoured us, in speaking of the employment of chloroform in lithotomy, suggests that this agent may render lithotomy in all cases eligible over lithotripsy. To a certain extent, it certainly may, but we conceive not in cases in which the stone is so small as to be destroyed by one seizure of the instrument, as has occurred in our practice. The use of chloroform does not preclude the occurrence of hemorrhage, urinary infiltration, and peritonitis, after lithotomy.

It has been generally thought that lithotripsy is ineligible on very young subjects, on account of the narrowness of the canal, and the unmanageableness of the patient. The chairman of this committee, however, has performed lithotripsy, with Jacobson's and Heurteloup's instruments, on infants two years of age, in no less than four instances, and on several other very young subjects. In one respect he has found the operation more certain than on adults. The bladder expels the fragments more promptly. He has been somewhat discouraged with the operation on old subjects, from the fact that fragments small enough to pass with facility have been retained for months, probably on account of the columnar condition of the bladder. He has performed lithotripsy twice on the paralyzed bladder, not a drop of urine ever being discharged except by the catheter. The removal of the stone was effected partly by bringing away at each operation, with Civiale's modification of Heurteloup, a pinch of the calculus in the beak of the instrument, and partly by washing away the debris with a syringe, through a large, double-barreled catheter.

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The Association is aware that, recently, many interesting experiments have been made abroad in the use of compresses, by simply imposing weights upon the part, in the treatment of aneurism. Prof. Willard Parker, of New York, furnishes us with an interesting case, illustrating their efficacy in traumatic aneurism, resulting from the application of the ligature for the cure of spontaneous aneurism. Hemorrhage had occurred on the ninth day after the operation, and from that time traumatic aneurism began to develop itself, and bleeding was occasionally repeated, notwithstanding the use of compresses, bandages, &c. The operator resorted to manual compression, and it was maintained faithfully by assistants for seventy-two hours, with apparent success; but pulsation returned, owing to hypertrophy of the heart. The surgeon then resorted to the following expedient: he prepared a compress of folded adhesive plaster, the plaster-side out, two and a half inches long, and of the size of the finger. This he placed longitudinally along the artery, beneath Poupart's ligament, so as not to interfere with the return of the blood by the vein. Another—similar, but flat, and one and a half inches wide—was superimposed, and prevented the displacement of the first. Over the whole were placed a compress of linen and the spica bandage. A bag of shot, weighing five pounds, was then placed upon the part, with the effect of subduing the pulsation completely. After five days this was replaced by another, weighing two pounds, which was continued for two days. Complete success crowned the ingenious expedient.

The author of this Report succeeded, in two instances of secondary hemorrhage from the femoral artery, occurring under precisely similar circumstances, in obliterating the vessel by the use of the graduated compress and spica bandage. The patient had universal disease of the arteries, and died of aneurism of the aorta, the year following.

Dr. J. Mason Warren, of Boston, has recently performed successfully the ligature of the subclavian artery, for aneurism of that vessel, in a case which exhibits some interesting peculiarities. As, however, a full account of the operation, and its results, has been published in the *American Journal*, we will merely state that the case requiring the operation was one in which, in consequence of spinal distortion, the artery had been thrown out of its ordinary relations. The first, and a part of the second rib, had been elevated above the clavicle, lifting, of course, the artery far above the clavicle, to within an inch of the external border of the trapezius muscle, to which it was parallel. The aneurism existed at the bottom of the

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arch thus formed, on the distal side of the scaleni, and on the scapular end of the clavicle. This elevation of the arch of the artery rendered feasible the application of the ligature to the vessel, on the outer side of the scaleni, though the aneurism was above the clavicle. This, we believe, has never before been accomplished.

The collateral circulation was restored, in this case, in twenty-four hours. The ligature was retained for the unprecedented time of ninety-six days.

In a case, never yet reported, in which the chairman of this committee performed the ligature of the subclavian on Miss Ramsay, of Baltimore, the ligature came away on the eighth day, while he was gently sponging the wound; no hemorrhage occurred, and the case resulted happily. The artery was ascertained to be exceedingly tender at the moment of the operation, the ligature being felt to divide the inner tunics with very slight constriction. This case is also interesting on account of the extreme circumstances under which the operation was performed, the tumour being of large size, having ceased to pulsate, and having caused complete paralysis of the arm by pressure. The patient was also in an exceedingly feeble condition, with a pulse of 140.

We have been furnished with the history of a case highly instructive and creditable to our art, of operation for artificial anus, by Dr. J. Mason Warren, in which that distinguished surgeon accomplished one of the most difficult enterprises in operative surgery.

Unlike those cases which the operator had seen abroad, under the care of Dupuytren, the intestine did not open on the surface by a large and obvious aperture. The outlet was a sort of delta, indeed, numerous fistulous passages, traversing tumid and indurated parts. Two in the groin allowed the probe to penetrate its entire length. These being presumed to be nearest the breach in the intestine, were gradually dilated by sponge-tents, a month being consumed in effecting this, so as to distinguish certainly the two ends of the intestine. A bougie was then conveyed into each extremity. The septum between the two orifices was passed with difficulty, owing to its so closely approaching the walls of the abdomen. No fæces had passed per anum for two months. The intestinal ends were parallel.

When the opening had been sufficiently dilated to allow the little finger to reach the septum, a director was carried down beside the finger, so as to lift the valve-like septum, a gum catheter conveyed into the lower portion, and water injected. The passage of this fluid per anum rendered it certain that the lower orifice had been pene-

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trated. The enterotome was now introduced. Dupuytren's instrument was, however, found inapplicable, it being impossible to close the jaws in consequence of their confinement, owing to the depth of the opening beneath the surface. An instrument was employed resembling Dupuytren's, except in the blades, which were merely serrated, like those of polypus forceps, and shorter. The blades of this instrument were firmly closed, without difficulty. Three days after its application the instrument came away, enclosing a black slough, two inches and a half long, four lines wide, and about three thick. Suffice it to say that, although some difficulties occurred in the after treatment, the case resulted most happily.

Prof. March, of Albany, has, within the past year, as he informs us, given special attention to the morbid anatomy of hip disease, and has particularly inquired into the supposed frequent occurrence of spontaneous dislocation, as one of its events. He has not only, in relation to this subject, visited and examined numerous pathological collections in this country, but, in a recent tour in Europe, has availed himself of every opportunity to examine the more extensive collections abroad. He has examined nearly two hundred specimens of true hip disease, or ulcerative absorption of the head of the femur, and the acetabulum. In about one in four, anchylosis had taken place; in about one in five the ulcerative absorption had extended through the acetabulum. He saw as many as twenty cases of congenital dislocation, besides many dislocations from violence, but it is a remarkable, an instructive fact, that he saw but *one* of spontaneous luxation from ulcerative absorption.

We have received a pamphlet from Dr. Hollihun, of Wheeling, Va., describing a case of elongation of the jaw, and distortion of face, caused by burn, successfully treated by operation. The management of the case is highly creditable to the surgeon, but as it involves no new principle, and as our space is limited, we have not undertaken to analyze it.

In reporting on the progress of Surgery, your committee have found it impossible to notice all the creditable achievements in surgery, of which publication has been made in the journals. These, indeed, are already before the profession. We have felt it our duty especially to embody in our report such information as has been furnished in response to our circular, and may be new to the profession.

In conclusion of their Report, your committee take pleasure in stating that, in their inquiry, they have found that, in this depart-

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ment of medicine, the spirit of improvement is abroad in our country, and that the inventive genius, which we claim as a national characteristic, is being exercised with signal success, in whatever relates to the science and art of surgery. We doubt not that the inspiriting influence exerted by the annual meetings of this Association will have the effect to rouse it to still more strenuous exertions.

NATHAN R. SMITH,
Chairman of the Committee on Surgery.

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REPORT OF THE COMMITTEE ON OBSTETRICS.

THE Committee on Obstetrics, in presenting their Report, regret the necessity of calling, for a moment, the attention of the Association to a matter personal to themselves.

It will be remembered that at the last meeting of the Association, Dr. B. R. Welford, of Virginia, was appointed Chairman of the Committee on Obstetrics. His associates anticipated, with great satisfaction, from his ripe learning and enlarged experience, a Report which would do justice to the subject and give pleasure to the Association. It was not until towards the close of March, that the committee were made aware that a serious attack of illness had entirely disabled their Chairman for the duties so wisely assigned to him, and that the preparation of the Report would devolve on one of his associates.

For the result of labours imposed so suddenly and unexpectedly, and prosecuted with so little time for research, the committee ask the indulgence of the Association.

The year that has passed, though it has offered no very striking discovery or important improvement in obstetrics, or the kindred branches of medical science, has been honourably distinguished by zealous prosecution of researches previously begun, and careful and persevering efforts to appreciate the value of modes of investigating and healing disease, which, if not absolutely and with strict reference to a limited period of time new, have not yet received the sanction of general approval and adoption. Some of these it will be the duty of the committee to notice.

They will ask the attention of the Association first to subjects connected with the diseases of the non-pregnant female, then to those embraced under the title of obstetrics proper. Before entering on the consideration of the particular diseases of females, the committee have to perform a very agreeable duty, in noticing a work upon the general subject, by a member of the Association,

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Prof. Meigs, of Philadelphia. Embodying the results of large experience and varied learning, the treatise of our distinguished countryman will not fail to take a high place among the standard works on medicine.

Of the diseases peculiar to females, there are probably none which so strikingly illustrate the progress of sound pathology, and its beneficial influence on modes of practice, as the congestions and inflammations of the os and cervix uteri. It is hardly an exaggeration to date the beginnings of all true knowledge of these very common affections at a period within the last dozen years, for it is within that time that the speculum, the only true means of accurately diagnosticating and successfully healing them, has been in common use. Just twelve years ago (as many will remember) the use of the speculum was scoffed at, the advantages derived from it decried, and its advocates derided, if not abused, by the leading medical periodicals of Great Britain. Now, few of those who devote any special attention to the diseases of females are without, or fail to use it in every serious case.

This improvement in our means of diagnosis has been fruitful of practical advantages; by it a large and varied class of affections, which have formerly been grouped together as leucorrhœas, and under that vague name had for ages been numbered among the *opprobria medicorum*, have been separated into well characterized species and varieties, and subjected to plans of treatment which, varying in detail with the character of each, are very generally and often very speedily successful.

This may surely be claimed as a true advance, an important triumph of our art. That this change is rapidly extending its influence, all our journals afford proof, in the record of cases in which the speculum was used. The committee indulge the hope that, as every year's experience attests the value of this practice, and indeed its indispensable necessity to accurate diagnosis, every year will witness an extension of it, till the speculum is as generally and as constantly used in the diagnosis of uterine disease, as is the stethoscope in affections of the lungs and heart. Among the papers referred to, as indicating substantial advance in the treatment of inflammations of the os uteri, the committee would particularize the paper of Dr. Massey, in the first number of the *Ohio Medical and Surgical Journal*, and the very able address before the Connecticut Medical Society, by Dr. Barker, of Norwich.

Uterine displacements, their diagnosis and treatment, have en-

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grossed a large share of professional attention for some time, and this attention has certainly not been diverted during the past year.

From the time of Hunter and Gregoire, retroversion of the uterus has been recognized as an accident to which the pregnant woman was especially, though not exclusively, obnoxious; but until a very recent period, retroflexion of the non-gravid uterus, a bending backwards of the organ upon itself, when noticed at all, has been spoken of as a very rare occurrence. It is thus mentioned by Denman; and in the great work of Boivin and Dugés a few cases are given, and a very good account of the displacement appended. This account is copied by Colombat without addition, and referred to by other writers; all agreeing that the affection was very rare. A widely different opinion has been advanced, within the last few years, by Professor Simpson, of Edinburgh, and has found advocates both in this country and abroad. Professor S., and those who think with him, assert, that Retroversion, under which term he, too, includes retroflexion (considering it only a degree or variety of the former), is a not uncommon affection of the unimpregnated uterus, though it has hitherto escaped notice altogether, or been confounded with other conditions, as pregnancy, fibrous tumour of the posterior wall of the uterus, ovarian disease in its early stage, &c. &c. Professor S. has given cases, confirmatory of his opinion, which has also received support from the recorded experience of other practitioners. The mode by which he has been enabled, he thinks, to correct prevalent error, is, by using a mechanical means of diagnosis, which he calls the uterine sound. This instrument consists of a slender steel shaft, bent like a male catheter, knobbed at the end, and fixed in a flat handle; one side of which, that towards the concavity of the shaft, is roughened, that the practitioner may never be in doubt as to the direction of the instrument when introduced into the cavity of the uterus. The uterine extremity of the sound is marked at intervals of an inch, so that it is easy to ascertain how far it has penetrated. By the use of this sound, Professor S. thinks that he is able to ascertain, with absolute certainty, the axis of the uterus, the depth of its cavity, and the size of its orifice, all important elements in the diagnosis of uterine disease. This sound has been used in Great Britain, though not very extensively. It has been denounced with great bitterness by some very eminent London accoucheurs, as exceedingly dangerous and of little practical utility. To neither of these propositions are the committee prepared to agree. That, in the hands of the ignorant and the careless, this instrument

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may, and probably will, do harm, is certain; but that it can be used without danger or pain, the committee, one of them (C. R. G), from personal experience, have no doubt. But it is not alone as a means of diagnosis, that Professor S. uses the uterine sound. With it, he is able to replace the retroverted womb; and thus, temporarily, at least, remove the difficulty. Finding, however, that, though easily and promptly replaced, the womb would, on the withdrawal of the sound, fall back into its abnormal position, Professor S. has invented another instrument by which the organ is retained *in situ*. This he calls a pessary, as it differs from other pessaries, in that there is attached to it a shaft which penetrates the uterine cavity, and keeps the organ straight and in place. These instruments have, in the knowledge of the committee, been used in this country; the sound very frequently, and the pessary in a few cases. They refer to Appendix (D. 1 and 2) for report by Drs. Post and McCready, of New York.

The evidence thus furnished, confirmatory of much that Dr. Simpson has brought forward, is abundantly sufficient to prove that the presence of this shaft in the uterine cavity does not *always* produce that amount of irritation which we should, *à priori*, have expected. On the safety and advantage of this instrument, the committee pronounce no opinion. That it will sometimes do good, we have the testimony of some of the most distinguished accoucheurs in Great Britain to add to that of our own associates. That it often excites a degree of irritation which renders its prolonged use exceedingly painful, even intolerable to the patient, cannot be doubted. That, under such circumstances, and, perhaps, under others it would, if allowed to remain in the womb, excite painful and dangerous disease, is, if not certain, in the highest degree probable. One of the committee (C. R. G), could, if necessary, adduce two cases where patients were utterly unable to wear this pessary. By one, it was tolerated only a few hours, by the other but two or three days. It is no more than a proper acknowledgment of the favour Dr. Meigs has conferred on his profession by publishing the results of his experience, that his opinion of both these novelties should be particularly referred to. He approves of the sound; but condemns the pessary most unequivocally.

An ingenious instrument invented by Dr. H. Bond, of Philadelphia, for the replacement of the retroverted uterus, has, within the last month, been brought before the medical public. It was used by him in a case of retroversion where manual efforts had

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failed, and Simpson's sound could not be introduced into the cervix uteri. With the new instrument, Dr. B. succeeded perfectly, replacing the organ in a few minutes. What was found so eminently useful in a case of so much difficulty, must have merit. And the instrument of Dr. Bond will, doubtless, prove a valuable addition to our *armamentum obstetricum*.

In reference to prolapsus uteri, the committee find in the records of the past year little that seems worthy of special note. They deem it unnecessary to occupy the time of the Association by any notice of the various forms of pessaries and uterine supporters, which are constantly obtruded on the profession. A matter of more interest, is the operation for the permanent cure of complete prolapse, first suggested in England, by Marshall Hall, but first performed in France, by M. Girardin. This operation, by destroying, either with the knife, or actual cautery, two or three longitudinal strips of the vaginal wall, has, in some instances, so diminished the size of the canal, that its tonicity alone supported the uterus, and cured the disease. Within the past year, the operation by actual cautery has been performed by Dr. Van Buren, of Bellevue Hospital, with encouraging results, though the cure was not perfected. The operation seems to the committee to deserve more frequent and more extended trials than it has yet received.

Occlusion of the Vagina.—This state of parts, resulting most commonly from injuries suffered during parturition, but sometimes from acrid leucorrhœal discharge, and sometimes existing congenitally, has fallen under the notice of most obstetricians. During the past year, a new operation has been performed by Dr. A. P. Hayne, of Charleston, S. C. The adhesions of the vaginal wall were broken up by the persevering use of compressed sponge, and at the end of ten weeks the canal became pervious, and the retained menstrual fluid, which had been collecting for more than a year, was discharged; the patient did perfectly well. This operation, if hereafter found effectual, has obvious advantages; on the one hand, over the use of the knife, as avoiding the great danger of cutting into the bladder or rectum; and on the other, over the operation by laceration, practised by Amussat, as inflicting much less pain, and producing less local and constitutional irritation. It deserves to be kept in mind as an available means of relieving cases of great danger and difficulty.

Ovariotomy.—This tremendous operation, though it finds little

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favour with obstetricians, either at home or abroad, is still performed. Several cases have been reported during the past year in our own country and in Europe.

A new mode of removing these very dangerous and most intractable tumours, has been suggested by Mr. Tilt, which he derived from the similar operation, sometimes successful in the cure of hydatid liver. He proposes to cauterize one part of the abdominal wall, and thus excite an amount of inflammation which shall insure adhesion between the tumour and the parietal peritoneum, then to destroy, by further use of caustic, the abdominal wall and that of the tumour, and thus evacuate the latter of its contents. But one case is given—it was successful.

The operation seems to the committee to deserve further trial. The cauterization by the agent proposed (Vienna paste) is dreadfully painful; this, but for the introduction of anæsthetics, would constitute a strong objection; but, the pain being now controllable, we can the more readily avail ourselves of the benefits which the operation promises.

In the management of labour, two important modifications of former modes of practice have been suggested within a few years, and to a certain extent subjected to the ordeal of experience, viz., the detachment of the placenta from the uterine wall, in cases of placenta prævia, and the use of anæsthetics to control the sufferings and facilitate the progress of labour.

Placenta prævia has been, ever since its nature was pointed out by Paul Portal, considered one of the gravest accidents to which the parturient woman is exposed; and though the teachings of Levret and Rigby, in improving our knowledge of its pathology, suggested a mode of treatment which has met, from the time of its first announcement, with general approval, yet the mortality continues to be so great, that these cases always excite the gravest apprehension. It is to the active and original mind of Prof. Simpson, of Edinburgh, that we owe the revival of a practice first suggested by Mr. Kinder Wood, of Manchester, who proposed to separate the placenta entirely from the uterine surface, as a means of checking hemorrhage in placenta prævia. This new practice is advocated on three distinct grounds.

1st. The old plan, of rupturing the membranes and turning the child, has been, according to recorded experience, singularly unsuccessful, one in three of the mothers perishing, and the proportion of children saved being inconsiderable.

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2d. In not a few cases, the rigidity of the os and cervix uteri renders the operation of turning exceedingly difficult; indeed, almost impossible; and, when performed under such circumstances, it is nearly always and of necessity fatal.

3d. The detachment of the placenta will, in the vast majority of cases, immediately and effectually check the hemorrhage.

Of these propositions, the first, though it has been vehemently assailed, rests on a statistical basis which it is impossible to shake. That a very large proportion of the cases of placenta prævia are fatal to the mother, is certainly true; though it is possible, and this seems to the committee to be all which the opponents of the new operation now contend for, it is possible that the rate of mortality is not quite so large as has been stated, viz. one-third. That it is terribly, frightfully great, none who refer either to recorded cases, or to large individual experience, can deny. As to the second, it, too, must be admitted as the truth, though, as appears to the committee, not the whole truth. That the attempt to thrust the hand through the rigid os uteri will be often futile and always dangerous, may be admitted; and yet the question whether a judicious use of the plug, together with untiring watchfulness, might not conduct such a case to a favourable issue, remain untouched. That this question may, with an exception presently to be noted, be answered in the affirmative, the committee do not doubt. That ordinary rigidity of the os uteri, such as is met with in cases other than those of placenta prævia, will remain after the loss of an amount of blood, which shall at all jeopardize the life of the patient, the committee, notwithstanding the respectable authorities arrayed in support of the proposition, hesitate to believe. Bleeding, in quantities far below what is lost in placenta prævia, is found in practice so certainly and so universally to remove rigidity, that the committee are to believe either that an undilated has been confounded with an undilatable os, or that dilatation is prevented by a state of parts very different from ordinary rigidity, viz., an undeveloped state of the cervix, such as we find in premature labour. That such are full of eminent dangers, none who have had them in charge will deny. They often compel the accoucheur to make his election between two evils, both great, perhaps insurmountable, and, though his choice be made with ever so much judgment, too often does the result disappoint his hopes. If he turn, he directly and promptly destroys life; if he delay, he does but wait for the sure approach of death. Does the new practice afford us an escape from both these terrible evils? This brings us natu-

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rally to the consideration of Simpson's third proposition, viz., hemorrhage is immediately and effectually checked by the detachment of the placenta. The advocates of this doctrine rely not exclusively upon experience, they seek to support their theory by a reference to physiology. They claim that not only does experience prove that hemorrhage does cease, but sound physiology teaches that it ought, and of necessity, in the great majority of cases, must cease on detaching the placenta, because the source of this hemorrhage is not in the uterine sinuses, as has been hitherto supposed, but in the detached surface of the placenta itself. The blood, say they, enters the placenta by the curling arteries, and, in its forward course, passes out of the organ in greatest part at the torn orifices of those placental veins which before have conveyed it into the uterine sinuses. The arguments in favour of this new theory of the source of uterine hemorrhage in placenta prævia, are, first, that, in pursuing the course above indicated, the blood follows its natural onward progress, while it can only escape from the uterine sinuses by retrogression. Secondly, that this retrograde movement is prevented by the anatomical arrangement of the sinuses, and their mode of intercommunication. These arguments appear to your committee to be singularly unsound and illogical. Uterine hemorrhage must be by retrogression, in all those cases where the placenta has been previously discharged. Why then suppose another agency and another source in placenta prævia? If any anatomical peculiarities prevent retrogression in placenta prævia, why do they not always prevent it? But, admitting the unsoundness of the physiological reasons why hemorrhage should cease on detaching the placenta, the question assumes its true and practical character, and we ask, does it so cease? Is it a fact that detaching the placenta does check the flow? Of a practical question like this, but one mode of solution will be accepted by practical men. A resort to facts—facts well observed and honestly detailed. Looking only to evidence of this sort, the committee find abundant proof that, whatever be the cause, hemorrhage in placenta prævia is materially checked by detaching the placental mass from the uterine wall. To this point we have the testimony of so large and so respectable a body of practitioners in Great Britain, that to doubt it would drive us to the necessity, in consistency, of doubting every form and degree of medical evidence. The third proposition, then, must stand, and with it the value of the new practice; unless it can be proved, as has been asserted, that the plan here recommended is so difficult of execution, or attended

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with such and so great dangers, that for these reasons it must be rejected. Here again is a practical question, only to be settled by an appeal to facts. The objections of those who suppose that the placenta cannot be detached, will have, with practical minds, little force, when opposed to the candid statements of those who have done it. Now that this detachment is practicable, we have the testimony of Simpson, Radford, and a host of others who have repeatedly performed the operation. Reasonable men can require no more; what they have done, we can do. The question being decided, that the new practice has its value, it only remains to settle definitely what are the cases appropriate to it. Some of its advocates, at first, attempted to give it a wide range, so as to supersede the old plan altogether. This ground has, however, never been taken by its more judicious friends. They commend it only as a resource, when turning is impossible, or, from the state of extreme exhaustion, likely to destroy life. In the former category will be found the cases of so-called rigidity of the os, but in which, as the committee believe, the difficulty really depends on an undeveloped cervix; in such cases the operation is valuable, and to such the committee are disposed to confine it, believing that the cases of prostration can be as well managed by following the old rules, so admirably stated by Ingleby, as by a resort to the practice of Simpson.

In entering upon the subject of anæsthesia, in midwifery, the committee feel very profoundly the responsibility that is placed upon them, and the very great difficulty of treating a subject on which the opinions of the profession are so widely at variance. Before encountering the more difficult portion of their task, the committee take great pleasure in acknowledging the obligations which Prof. Channing, of Boston, has conferred upon the whole profession, by his able work on "Etherization in Childbirth." Conceived in the best spirit, and executed with perfect integrity, it is a source to which all may turn for authentic facts. As such, the committee will have frequent occasion to avail themselves of it.

The subject of anæsthesia has occupied so large a share of professional thought, has been so often and so constantly forced upon our attention that, unless frequently reminded of the fact, we shall assuredly forget that two years have scarce elapsed since it was used for the first time, to mitigate the pains of natural labor. That two years have not yet been completed, since, in the very city in which we are assembled, by one of that intelligent body of professional brethren by whom we have been so cordially welcomed and

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so hospitably entertained, sulphuric ether was first administered to a patient obliged to submit to a painful obstetric operation. But two years! It seems impossible that all we have heard, all we have seen, all that has been done, all that has been thought, on this wonderful agency, can have been crowded into a period so brief. Yet is it even so; and within that time this discovery has circled the earth, and spread, we had almost said, from pole to pole. Every home and haunt of civilized man has been visited by it, and everywhere humanity stretched out an eager hand to welcome relief from an evil so much dreaded as physical pain. But the progress of anæsthesia has not been an unbroken triumph, its mission has not been one of unmingled good. To the many, it has been a most beneficent agency, substituting sweet repose for restless suffering. To others, few indeed, but far, far too many, it has brought death; death mysterious in its mode, terrible in its suddenness.

That we of the medical profession should task our utmost energies in the investigation of an agency so potent for good, so capable of evil, is not strange. Strange, indeed, had we not done so. Strange had we failed of a duty so obvious, of a mission so imperative. It is well known to the Association, that there has been no want of zeal or industry in the prosecution of this subject.

A brief sketch of some of the results in the application of anæsthesia to obstetrics, the committee will now offer to their associates, asking most indulgent consideration for this part of the Report, containing, as it necessarily must do, much that is entirely familiar to many, perhaps to most of the members of the Association.

The committee desired to present an account of what has been done with anæsthetics in obstetrics, rather than obtrude their own opinion of the value of these agents, or any theoretical reasonings, however ingenious, upon their mode of operation, the dangers necessarily attendant upon their use, &c; but they soon found themselves embarrased by the want of accurate and precise information.

The journals of the past year give abundant proof that anæsthetic agents have been extensively used in midwifery, and also that the practice is gaining ground. It is, however, to be regretted, that most of those who have used them, have reported their own opinions of the value of the practice, rather than the facts on which these opinions are based; or, if they refer at all to experience, they speak of giving it in "many cases," but never tell how many. Our distinguished associate, Prof. Channing, is the most striking and most honorable exception to this remark. To him belongs the credit of

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having given to the profession the largest number of cases of etherization in midwifery yet published together, and they making, beyond doubt, the most valuable contribution which the literature of the subject has yet received. His object, as he himself states it, is, to show that, in childbirth, etherization has been safe and useful; that life has not been endangered by it thus employed, and that labour has been not only free from suffering but actually shorter. The way in which Dr. C. has attempted to establish these points, so important in themselves and in their relations, is *by facts*, and by such careful and cautious generalizations as the facts in his judgment fully authorize. The sources from which these facts are obtained are, in addition to his own individual experience, that of forty or fifty physicians to whom he applied; physicians residing in or near Boston, many of whose names have long been familiar to the medical public, and some of whom have contributed substantially to the advance of medical science. Dr. Channing has thus obtained the results of the use of anæsthetics in five hundred and fifteen cases of natural labour, and in fifty-two cases of instrumental or complicated labour. Of the former, the mothers all did well, and there were but seven still births; but it is the latter which has most interest, because the results obtained have been most unexpectedly favourable. Of the instrumental and complicated cases, in twenty, the forceps were applied, all the mothers and fifteen children being saved. In four, craniotomy was performed; mothers all saved. In ten, convulsions occurred; six mothers and three children saved. In nine, the arm presented; all the mothers and six of the children saved. In three, the breech presented; mothers and children all saved. One case of accidental and two of unavoidable hemorrhage; all the mothers and two children saved. One case of twins, mother and children did well, completes the list. The result of these cases, the committee have already said, is most unexpectedly favourable. Perhaps this will be made more obvious if Dr. Channing's report is compared with that of Collins, whose work, as is well known, presents the largest mass of statistical information on obstetrics, ever collected in the English language. Collins had twenty-four forceps cases; four mothers, or sixteen per cent., and eight children, or thirty-three per cent., died. Forty arm presentations; four mothers, or ten per cent., and twenty children, or fifty per cent. lost. Thirty cases of convulsions; five women and eighteen children lost, being sixteen per cent. of the former and fifty-six of the latter.

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Seventy-nine cases of craniotomy, fifteen women dying. Comparing these with Dr. Channing's cases, we find that Dr. Collins reports one hundred and seventy-three cases of the four varieties of irregular labor specified above, of which he saved one hundred and forty-five mothers and fifty children; Dr. Channing, forty-three cases, saving thirty-nine mothers and twenty-four children, showing a difference in his favour of six per cent. of mothers and twenty-seven per cent. of the children. In addition to his collection of cases, Dr. Channing has obtained and reported the opinions of thirty-four physicians, thirty-one of whom speak unequivocally in favour of etherization, and the remaining three add only the qualification that the article be pure and the cases well selected. Such a mass of professional opinion, based upon actual experience, must and will have great weight in deciding the question of the safety and value of anæsthetics. In turning from Dr. Channing's valuable work to other sources of information, the committee acknowledge their obligations to Dr. G. N. Burwell, of Buffalo, for notes of thirty-seven cases in which he gave chloroform to parturient females, always with entire safety and often with marked advantage. Part of these cases were published in the *Buffalo Journal.* The committee were also favoured with a communication from Dr. H. Lindsly, in which he states: "I have now employed chloroform or sulph. ether in about forty cases with complete or partial relief of suffering in every case, and without any injurious effects to either mother or child." Dr. Joseph Parrish, of Burlington, New Jersey, favoured the committee with an advance copy of his able paper on etherization, since published in the New Jersey Medical Reporter. The committee also refer with pleasure to early papers by Dr. J. Clark, of Marion, Penn. These are the chief contributions made in our country to the literature of the subject. Of the foreign reports, that in the collection of Prof. Simpson's papers, recently published, is the largest. His cases amount to six hundred and thirty-eight, but this number very imperfectly represents the extent to which these agents have been used in Great Britain, as nearly half the gentlemen who communicate their experience to Prof. S., speak indefinitely of having given chloroform in "many cases," or "frequently," or other vague terms.

In addition to these cases, we have reports from many of the leading accoucheurs in Great Britain, France, and Germany; but they are rarely given in such form as to admit of being used as the

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basis of statistics. We hear, as before, of ether or chloroform being used "very frequently," "very often," or the like; terms from which nothing definite and satisfactory can be deduced, except that the constant repetition of such phrases in papers emanating in many cases from gentlemen known to be largely engaged in obstetric practice, tends to confirm the general statement which the committee have already made, that anæsthetics are gradually gaining favour with the profession everywhere.

In reference to operative midwifery, our information is a little more precise. We find that the greater obstetric operations, craniotomy, version, and the application of the forceps, have been performed on etherized patients by Prof. Simpson, by Baron Dubois, by Siebold, Chailly, Roux, Dr. Murphy, Dr. Rigby, Mr. P. Smith, at the Westminster Lying-in-Asylum in London, at the Maternity Hospital in Edinburgh. In the great majority of these cases, the testimony to the advantage derived during the operation from the anæsthetic is decided and unequivocal. Other advantages than the mere control of pain are claimed for etherization, as its use has been more and more extended. It is said to produce relaxation of the soft parts. To this point we have the testimony of Siebold, Rigby, Murphy, Simpson, P. Smith, and others abroad, and of Drs. Channing, Lindsly, Burwell, at home. As to its influence on the child, the researches of Siebold, Dr. Putnam, and others, prove that the sounds of the fœtal heart are not affected by it. This seems to the committee to settle definitely the question of its having a deleterious influence on the fœtus. This is confirmed by the experience of Simpson, and especially by the cases of Channing, the number of still-born children being in both records below the average.

Another advantage claimed for etherization is that, under its influence, the contraction of the uterus after delivery has been more perfect and the chance of hemorrhage diminished. Cases are reported by Dr. P. Smith and others, in England, where patients who had in every previous labour flooded very freely, altogether escaped in the labour in which chloroform was given. The cases of this kind, reports of which have fallen under the notice of the committee, are not in sufficient number to establish the conclusion sought to be deduced from them. The matter must be held for the present in doubt; but though the question is not settled, the very fact that it is mooted, should direct the particular attention of those who use etherization to this point, that evidence may be as rapidly as possible accumulated upon it. Should subsequent experience confirm these

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observations, it will be the more remarkable; as an imperfect contraction of the uterus and post-partal hemorrhage were dangers most confidently predicted *à priori* by those who were opposed to etherization. It will be not a little curious, should observation prove that a danger which anæsthetics were supposed likely to increase is diminished by them.

These are the chief general advantages claimed to accrue from the use of anæsthetics in labour. A particular obstetric use, though incidentally mentioned heretofore, ought perhaps to be more distinctly noticed. Etherization has been used to control puerperal convulsions, by Messrs. Clifford, Wilson, Kite, Hearn, and Clifton in England, by Chailly, in France, by Dr. Channing in ten cases, and by many other practitioners in our own country. In nearly all the cases, the spasms were entirely controlled or essentially modified by the chloroform. A large majority of the whole number of patients recovered. Such success, in confessedly the most dangerous of the complications of labour, seems to the committee to establish the character of anæsthesia as a most valuable remedy.

Here, the question being not to relieve pain or obtain other minor advantage, but to cure a disease always dangerous and often fatal, the argument against the use of etherization, that we endanger life for inadequate reasons, does not apply. It is, at worst, only exposing a patient to a very small risk that she may avoid a very great danger. The committee deem that the propriety of this use of the agent does not admit a doubt.

The committee have now presented to the Association a sketch, necessarily imperfect, of what has been done in obstetrics with anæsthetic agents. The number of cases to which they have been able to refer has been comparatively small, and gives, as before stated, an exceedingly incorrect notion of the extent to which anæsthetics have been used. A year ago, a very intelligent committee of the Association expressed the opinion that they had then been given to more than two thousand parturient women. That this number has been during the past year more than proportionably increased the committee have no doubt. The practice has, as they believe, gained ground, everywhere, and has in some places become almost general. The cases must certainly now be enumerated by thousands. In no one has a fatal result followed. No one woman has yet lost her life in consequence of the pains of her labour having been controlled by etherization. This result, if it stood alone, would abundantly establish the safety as well as the power of anæs-

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thesia, and would enable us to confer upon woman the greatest benefit she has ever received from medical science. But this result unhappily does not stand alone. In surgery, death has, in several cases, followed so closely upon the use of chloroform, that few doubt that, in some way or other, the inhalation has destroyed life. Of these, three were cases where individuals destroyed their own lives by the careless use of the drug. The unhappy result of the surgical use of chloroform has had a most decided influence upon its use in obstetrics. What should be the extent of this influence, is a question which obstetricians must decide, and ought very candidly, as well as carefully, to discuss. Before entering upon the consideration of it, however, the committee will ask the attention of the Association to an attempt at the solution of another. Why is it that, while chloroform has been used quite as frequently, probably more frequently, in obstetrics than in surgery, the fatal cases have all occurred in surgical practice? In a communication with which the committee were favoured by Prof. Channing, a very ingenious answer to this question is offered, which is here submitted to the consideration of the Association.

The condition of the surgical patient, says Dr. C., when subjected to the anæsthetic influence, is widely different from that of the parturient female. In the former, the agent is used as a preparative to the operation, to prevent pain; pain is not present, it has exerted as yet no influence on the nervous system, that system has not as yet been exhausted by suffering; it is in its integrity, and has of course its greatest capacity of impression, the greatest amount of sensibility, with the least power of resistance. The whole nervous power is brought into relation with the cause affecting it, and yields to the impression. For the most part, the mind consents to the same thing, and no moral resistance is made. How is it in labour? Here pain is present, and has been for a long time; the nervous system has been greatly taxed; its power has, so to speak, been used up. Impressions upon it are weaker than they would be under other circumstances, the system comes readily under the anæsthetic influence, very little ether or chloroform is necessary, the consciousness need not be destroyed, sensibility need never be entirely abolished; neither of these states is desired or aimed at by the judicious accoucheur. Thus far Dr. C.

Returning to the question first stated, how far the fatal results of etherization in surgery should affect its obstetric use, the committee will here, as ever, attempt rather to give the Association facilities

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for forming an opinion, than obtrude any judgment of their own. First, then, let us ask what has been the influence of these fatal cases on the profession?

Some persons have been led to condemn anæsthesia altogether; others, referring the fatal catastrophe to the particular agent employed, give up chloroform and use ether; others, again, though they still give chloroform as well as, and some in preference to, ether, confine anæsthesia to operative midwifery, and to complex or very difficult cases of natural labour. A last class, comprehending many of the original supporters of etherization, deem that the sole influence these untoward events ought to have, is, to impress upon the mind the necessity of care and watchfulness in the use of whichever agent is chosen.

To the arguments of the supporters of each of these opinions, the committee will endeavour to do justice; and, first, of those who altogether reject anæsthesia.

That they may be certain not to weaken the force of arguments which do not carry conviction to their own minds, the committee, having applied to a learned friend, present the objections to anæsthesia in his words:—

1. "Death has resulted from its use. Now, as the relief of pain, and the promoting of relaxation, the two great beneficial effects of this agent, can, in a great degree, be safely procured without it, and as the evils thus removed are very seldom *per se* dangerous, the lesser, not the greater danger, ought to be incurred."

2. "The contradiction of testimony as to its effect is a strong argument against it. The surgeons tell us it relaxes all the voluntary muscles, and sometimes even the involuntary; the obstetricians say that the contractions of some of the voluntary muscles are not diminished, the bearing down efforts being as strong as ever; while, strange to say, other voluntary muscles are relaxed, those of the perineum particularly. The contractions of the uterus, some say, are as energetic as ever; some assert that they are even more so; yet even Simpson acknowledges that an over-dose suspends all uterine action as well as voluntary effort."

3. "There are various states of the general system in pregnancy and labour, and also of individual organs, which, reasoning *à priori*, would forbid the use of this agent. I allude particularly to plethora and local congestion."

4. "Does not every accoucheur wish to have the command of his patient's mind? Who wishes his suffering patient to be delirious,

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intoxicated, insensible? Is not this the more important, the more serious the operation?"

5. "Anæsthesia is very liable to abuse. By rendering the patient insensible to pain, it may throw the practitioner off his guard, and prevent that thorough examination into the nature and amount of existing difficulties that would otherwise be made. Thus may the child perish, or the soft parts of the mother be destroyed, while the practitioner, lulled into security by the absence of pain, may suppose all is well."

This statement of the objections to etherization, the committee submit without comment to the Association.

Of those who, while they reject chloroform, approve of the production of anæsthesia by other agents, a large majority use sulphuric ether; a small minority being nearly equally divided between chloric ether and a mixture of chloroform and ether. Those who prefer sulphuric ether, rely mainly on the fact, that in but one case has its inhalation directly and indisputably destroyed life. It is, therefore, certainly less likely to do mischief, when unskilfully used, and probably, under all circumstances, safer. But with this one important item, the catalogue of the advantages of ether begins and ends; for though some, Mr. Curling, for instance, assert that its influence is less transient, and the patients are more readily kept by it for a long period in the anæsthetic state, yet, as the exact contrary is stated by Dr. Simpson, the conflicting testimony can establish nothing. Mr. Curling also prefers the use of ether in persons very much exhausted, believing that it has a supporting influence, which chloroform has not. This notion wants confirmation, though it is perhaps probable. Such are the advantages, real or supposed, of sulphuric ether. But there are to it some very strong objections. It sometimes irritates the respiratory apparatus to such a degree that its continued use and the production of anæsthesia by it are impossible. It is sometimes impossible to get the patient beyond the state of excitement, and this state is always longer and more violent than when chloroform is used. Ether is more often followed by unpleasant effects; as headache, soreness of the chest, &c. In some persons it produces a very free flow of saliva, which entering the posterior fauces may embarrass respiration.

The advantages of chloroform are, a smaller quantity is required, fewer persons resist its influence, it produces no cough, choking, salivation, or other evidences of irritation of the mucous membrane. The state of excitement is avoided, or is so short as to amount to

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nothing. Chloroform has nothing of the disagreeable and very permanent odour of ether; in short, it has every advantage except safety. Is it possible to add this to its other advantages? Here is the point on which the whole question must turn.

Without pretending to give a decided opinion, it may be stated, without fear of contradiction, that to avoid the dangers which have resulted from chloroform, if indeed they can be avoided, requires great care and an amount of skill and tact in judging of the progress of anæsthesia, which can ordinarily be gained only by experience. Such being the case, the committee quote with the strongest expressions of approbation the advice of M. Valleix; that all persons who are not practically familiar with anæsthesia, should make their first trials with ether, and only venture on chloroform when experience shall have given them accurate knowledge. The soundness of this advice being, as the committee think it must be, admitted by all, the question still returns; should the expert continue to use ether, or may he avail himself of the advantages, minor, but still very considerable, which chloroform offers? This, like all practical questions, must be settled by an appeal to facts? How stand the facts? What have been the results, when chloroform has been used by those who have thorough knowledge and abundant skill? The committee believe that few, if any, of the fatal cases have occurred to such persons. In no one instance within their knowledge, has a fatal result followed the use of chloroform in the hands of any individual who is known to have paid particular attention to the general subject of anæsthesia, or to have been in the habit of using chloroform frequently. This, of itself, considering the very great freedom with which chloroform has been used by particular individuals, some counting their cases by hundreds, affords presumptive proof that chloroform is safe in experienced and judicious hands.

Let us look for a moment at the fatal cases. There are thirteen. Three were the result of gross and foolish rashness; the patient, with no knowledge of the agent, using it on himself when alone. These may be fairly left out of the count. But if, in proper hands, chloroform is safe, within what limits should it be used? Should it be reserved for operative midwifery, for complex or very difficult cases of regular labour, or should it be given in ordinary cases? Here the very great preponderance of opinion is in favour of a restriction on the use of etherization. From all the sources of information within their reach, the committee are led to believe that those who

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use anæsthetics in every case of ordinary labour are in a very small minority, while a very large majority would favour them in operative midwifery, and perhaps a majority, though certainly a small one, would give either ether or chloroform in difficult cases, of complex or of regular labour. In making the statement with regard to operative midwifery, the committee are not unaware that special objection has been made to anæsthesia in these cases; they speak of what, as they suppose, is the preponderance of opinion.

The use of anæsthetics, in operative midwifery, is defended not alone because they prevent physical pain, though that is a great advantage, pain always increasing the danger, and sometimes directly destroying life, but because they facilitate the operation. The extent to which the resistance of the patient impedes our efforts is known to all. None, but those who have had personal experience, can adequately appreciate the advantage of having a patient, throughout a long and painful operation, perfectly passive.

The committee confidently believe that the operation is, in this way, robbed of half its difficulties. But this removal of obstacles from the path of the operator, though the committee have been led somewhat accidentally to mention it first, is not the chief recommendation of the practice; the recorded experience of Channing and others goes far to prove, that the patient's chance of recovery is substantially increased, when she is saved the hour of agony. How, indeed, can it be otherwise? Who that has seen the etherized patient, after a severe and protracted operation, rouse from a state of unconsciousness, as from a refreshing sleep, and receive the announcement that all is over with a smile of wondering joy; who that has seen this, and compared it with the condition of her to whom this great boon has been denied, and who, after cries and screams of agony, and struggles that would not be controlled, has sunk sobbing and shuddering into a state of utter nervous exhaustion; who that has seen this, can doubt, that, under such circumstances, the chances of recovery are augmented by anæsthesia? The committee deliberately believe that they are; and that, in the more severe obstetric operations, not only may anæsthetics be rightfully given, but that they may not be rightfully withheld.

Before dismissing the subject of etherization, the committee beg to call the attention of the Association to its use in puerperal mania and laryngismus stridulus. In the former disease, it has been given by M. Bouvier and others with most manifest advantage; of laryngismus stridulus, two successful cases are reported in the

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foreign journals, and one where the result was encouraging has fallen under the notice of a member of the committee.

Connection between Albuminuria and Puerperal Convulsions.—The existence of albumen in the urine of patients attacked by puerperal convulsions has been noted in so many cases, that there can be little doubt of their occasional co-existence. This co-existence is of the more interest when taken in connection with an observation first made by Madam La Chapelle, that parturient women who had edema of the face and hands, were especially obnoxious to convulsions. It would now seem probable that this edema is dependent on albuminuria. Dr. Simpson asserts that albuminuria is most common in the primipara, but that in her it disappears after labour; while in the multipara, though it is less common, it is generally persistent, and indicates granular disease of the kidneys. The whole subject deserves and indeed requires to be carefully re-studied.

Puerperal Diseases.—The committee find a suggestion of much interest on the prophylactic powers of quinine in puerperal fever, from M. Londet, of Rouen. He tried it in the endemics of the Hôtel Dieu, at Rouen, in 1843, 4, 5, and 6. The results obtained were that of one hundred and four patients who took no medicine; forty, or one in eight and a half, caught the fever; while of forty who took quinine, only two were attacked. Five grains were commonly given as soon as the patient had fairly rallied from the parturient act, and the same dose repeated thrice a day, through the first and second day, after which it was continued in smaller quantity, ten grains in twenty-four hours, till the ordinary period of the accession of fever was past. This alleged prophylactic is certainly worth trying. If it succeed in diminishing the number of persons attacked by a disease so frequently fatal as puerperal fever, a great benefit will be conferred on humanity. In further reference to puerperal fever, it may be stated that proofs of its intimate connection with erisypelas are multiplying. Numerous cases have, within the past year, been reported, where it appeared certainly to be communicated to parturient women by physicians who chanced at the time to be attending bad cases of erisypelas.

C. R. GILMAN.

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D.—1.

Case of Retroflexion of the Uterus. By Dr. A. C. Post, of N. Y.

Retroflexion of unimpregnated Uterus.—Sept. 2, 1848. Visited Mrs. W., ætat. 33. She had been confined with her only child seven years before, and soon after that time she began to suffer with pain and bearing down in the pelvis, especially during the acts of menstruation and defecation. She informed me that the pain attending this latter act resembled in severity the pain in labour. On examination, I found the os uteri in its normal situation, somewhat engorged, and slightly eroded. At the posterior part of the vagina, I found a tumour pressing upon the rectum; from its shape, size, and position, I was inclined to regard this tumour as the retroflected fundus of the uterus. At this visit, I cauterized with arg. nit. the excoriated surface of the os tincæ. On the 19th September, I introduced Simpson's uterine bougie, and established as a fact what I had previously supposed, viz., that the uterus was in a state of retroflexion. The instrument could not be introduced with its concavity towards the pubes, but it entered readily with its concavity towards the sacrum; and when it was so introduced, the end of the bougie could be felt at the extremity of the tumour which pressed upon the rectum.

By turning the instrument within the uterus, its concavity was brought towards the pubes, and the tumour which pressed upon the rectum disappeared.

On withdrawing the instrument, the tumour re-appeared, but it did not descend as low as before; and from that time the severe pain attending defecation was in a great measure relieved. The introduction of the bougie and the temporary replacement of the uterus were repeated several times at intervals of a week. It occasioned a very moderate amount of irritation. On the 18th of October, I introduced Simpson's uterine pessary, which the patient wore without material inconvenience for two days. On the third day, she experienced severe pain; and, on examination, I ascertained that the

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instrument had slipped, and that the uterus had become bent over its extremity. I replaced it in its proper position and the patient again became comfortable. On the 25th, I again found that the instrument had become somewhat displaced; I again put it in its proper position. On the 30th, I found that the instrument had occasioned a considerable amount of irritation, and I accordingly removed it. On the 6th of November, I explored the uterus with an uterine bougie which entered readily with its concavity towards the pubes. No tumour existed at the posterior part of the vagina. From that time till December 9th, I made several similar examinations, and always found the uterus in its proper position. The uterus, however, remained somewhat engorged, and there was some erosion at the vaginal orifice, for which I made several applications of the nitrate of silver. There was no return of the distressing symptoms during defecation, and the patient's general health was much improved.

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D.—2.

Case of Retroflexion of the Uterus. By Dr. B. W. McCready, of New York.

Mrs. S., ætat. 35, born in New York, the mother of several children, but now separated from her husband, was confined nine months ago of an illegitimate child. Since her confinement, she has suffered from a gradual decline of health and strength, loss of appetite, and nervousness. These symptoms have been accompanied by a sensation of pressure on the lower bowel, particularly when she first sits down, by pain in the back, by a dragging feel in the groin, and frequent desire to pass water. Jolting in an omnibus, or much walking, always materially aggravates her sufferings. She has a sallow complexion, and an anxious expression of countenance.

On vaginal examination, found the os higher up than natural, the anterior lip partially effaced against the wall of the vagina, while the fundus of the uterus could be felt low down between the vagina and the rectum. The finger introduced into the rectum, immediately detected a firm round tumour, the fundus of the uterus, encroaching on its cavity. The uterine bougie was introduced with its concavity forwards, and the uterus readily replaced in its natural position; the uterus was found considerably enlarged. The patient was confined to her bed, and directed to lie upon her face as much as possible. The bowels were moved with small doses of sulphate of magnesia, and magnesia, and half a grain of the proto-iodide of mercury was given morning and evening. At the end of two or three days, a bitter infusion was added to the remainder of the treatment, and the sound was used every second day for the purpose of replacing the uterus, which was constantly found to have resumed its abnormal position.

At the end of ten days, the patient's general health was much improved. The complexion had become clear, the appetite and strength better. The feelings dependent upon the displacement of the uterus were still present, though in a diminished degree.

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Saturday, Oct. 28th, 5 P.M. The uterus was replaced and the uterine pessary introduced. The patient feels no pain from the introduction of the instrument, and expressed herself as perfectly comfortable. She was directed to lie down and remain perfectly quiet.

Sunday, 29th. Had been chilly during the night, and complained of a frequent desire to pass water, with some soreness in the hypogastric region. The pulse was one hundred, and the skin warm, with tendency to perspiration.

An ounce of sulphate of magnesia was ordered. This operated freely. In the afternoon, the skin was cool, the desire to pass water less troublesome, and the patient in every way comfortable.

Monday, doing well.

Tuesday, at eight in the morning, I was sent for in haste. Mrs. S. had during the night a severe chill. She had vomited repeatedly, the matters vomited consisting chiefly of the fluids drunk.

She complained of great pain and soreness in the hypogastric region, stretching through to the back. There was frequent desire to pass water, and a good deal of tenderness about the hypogastrium. She was very restless, the pulse one hundred and sixteen and moderately full, and the skin warm and dry. The instrument was withdrawn. The stem was covered with an offensive secretion of dirty colour, apparently muco-purulent in its nature. Quiet was enjoined, and two grains of opium were administered. In the afternoon, the nausea and vomiting had ceased, the abdominal tenderness was diminished, and the desire to pass urine less frequent; the pulse was one hundred and six, and she perspired copiously. On the next day she was, with the exception of feeling weak, in her usual health. If the patient had been confined to her bed, and submitted to treatment until the uterus had been reduced to its normal size, the introduction of the instrument might not have given rise to so much irritation, and perhaps, in such case, the health of the patient might have been restored without its employment.

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E.

The Committee, appointed at the last meeting of the American Medical Association, to Report upon the subject of "Medical Education," respectfully submit that they have endeavoured diligently to perform the duties assigned them by the Constitution, and now ask leave to present the following, as the result of their labours.

REPORT.

THE subjects which the committee is directed to investigate, as defined by the standing rules, may be divided into the four following sections:—

SECT. 1.—An examination into the general condition of Medical Education in the United States, in comparison with the state of medical education in other enlightened nations; noticing, as occasion may call for, the courses of instruction, the practical requirements for graduation, the modes of examination for conferring degrees, and the number of pupils and of graduates at the several Medical Institutions in the United States.

SECT. 2.—The requirements of the United States Army and Navy Boards of Medical Examiners.

SECT. 3.—The legal requirements, exacted of medical practitioners in the several States of the Union.

SECT. 4.—Such measures, prospective or established, in reference to Medical Education and the reputable standing of the profession, as may be deemed worthy of special consideration.

To these will be added a fifth section, to comprise the consideration of certain matters not contemplated by the constitution, and which were specially referred to this committee.

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It is our purpose to consider each of these several subjects separately, and we shall do this in the order in which they have been arranged.

SECTION I.

Of the General Condition of Medical Education in the United States, in comparison with the State of Medical Education in other enlightened nations, &c. &c.

A.

To enable us to institute an intelligible and satisfactory comparison between the state of Medical Education at home and abroad, we will present a synopsis of the rules and regulations in force in some of the European institutions in regard to the subjects taught, courses of instruction, requirements from students, examinations for the degree, and other matters pertinent to this subject, and a summary of the regulations established by the colleges of our own country.

I. GREAT BRITAIN AND IRELAND.

The following Universities in Great Britain and Ireland, are empowered to grant Medical Degrees, viz.:—

1. University of London. 2. University of Oxford. 3. University of Cambridge. 4. University of Edinburgh. 5. University of St. Andrews. 6. University of Aberdeen. 7. University of Glasgow. 8. University of Dublin.

Besides these, there are numerous colleges of surgeons and physicians, whose fellows teach medicine and surgery, and which are authorized to grant certificates and licenses after examination.

The course of instruction pursued at the universities, and at most of the other institutions, is essentially the same, and hence we will only cite the rules, &c., in force at one of them.

UNIVERSITY OF EDINBURGH—*Statutes of the University of Edinburgh, relative to the Degree of M.D.*

SECT. I.—No one shall be admitted to the examinations for the degree of doctor of medicine, who has not been engaged in medical study for four years, during at least six months of each, either in the University of Edinburgh, or in some other university where the

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degree of M. D. is given; unless, in addition to three Anni Medici in an university, he has attended, during at least six winter months, the medical or surgical practice of a general hospital, which accommodates at least eighty patients, and during the same period, a course of practical anatomy; in which case, three years of university study will be admitted.

SECT. II.—No one shall be admitted to the examinations for the degree of doctor, who has not given sufficient evidence—

1. That he has studied, once at least, each of the following departments of medical science, under professors of medicine in this or some other university, as already defined, viz.: Anatomy, Chemistry, Materia Medica and Pharmacy, Institutes of Medicine, Practice of Medicine, Surgery, Midwifery, and the Diseases peculiar to Women and Children, General Pathology, Practical Anatomy (unless it has been attended in the year of extra academical study allowed by Sect. I.), during courses of six months. Clinical Medicine, that is, the treatment of patients in a public hospital, under a professor of medicine, by whom lectures on the cases are given—during a course of six months, or two courses of three months. Clinical Surgery, Medical Jurisprudence, Botany, Natural History, including Zoology, during a course of at least three months.

2. That in each year of his academical studies in medicine, he has attended at least two of the six months courses of lectures above specified, or one of these, and two of the three months courses.

3. That, besides the course of clinical medicine already prescribed, he has attended, for at least six months of another year, the medical or surgical practice of a general hospital, either at Edinburgh or elsewhere, which accommodates not fewer than eighty patients.

4. That he has attended, for at least six months, by apprenticeship or otherwise, the art of compounding and dispensing drugs at the laboratory of a hospital, dispensary, member of a surgical college or faculty, licentiate of the London or Dublin Society of Apothecaries, or a professional chemist and druggist.

5. That he has attended, for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or that of a physician, surgeon, or member of the London or Dublin Society of Apothecaries.

SECT. III.—No one shall obtain the degree of doctor, who has

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not studied, in the manner already prescribed, for at least one year previous to his graduation, in the University of Edinburgh.

SECT. IV.—Every candidate for the degree in medicine must deliver, before the 24th of March of the year in which he proposes to graduate, to the dean of the faculty of medicine—

1. A declaration, in his own handwriting, that he is twenty-one years of age, or will be so before the day of graduation, and that he will not be then under articles of apprenticeship to any surgeon or other master.

2. A statement of his studies, as well in literature and philosophy as in medicine, accompanied with proper certificates.

3. A medical dissertation, composed by himself, in Latin or English; to be perused by a professor, and subject to his approval.

SECT. V.—Before a candidate be examined in medicine, the medical faculty shall ascertain, by examination, that he possesses a competent knowledge of the Latin language.

SECT. VI.—If the faculty be satisfied on this point, they shall proceed to examine him, either *vivâ-voce* or in writing: 1st, on Anatomy, Chemistry, Botany, Institutes of Medicine, and *natural history* bearing chiefly on Zoology; and 2d, on Materia Medica, Pathology, Practice of Medicine, Surgery, Midwifery, and Medical Jurisprudence.

SECT. VII.—Students, who profess themselves ready to submit to an examination, on the first division of these subjects, at the end of the third year of their studies, shall be admitted to it at that time.

SECT. VIII.—If any one, at these private examinations, be found unqualified for the degree, he must study for another year two of the subjects prescribed in Sect. II., under professors of medicine, in this or some other university, as above defined, before he can be admitted to another examination.

SECT. IX.—Should he be approved of, he will be allowed, but not required, to print his thesis; and, if printed, forty copies of it must be delivered before the 25th day of July to the dean of the medical faculty.

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SECT. X.—If the candidate have satisfied the medical faculty, the dean shall lay the proceedings before the Senatus Academicus, by whose authority the candidate shall be summoned, on the 31st of July, to defend his thesis; and, finally, if the Senate think fit, he shall be admitted, on the first lawful day of August, to the degree of doctor.

SECT. XI.—The Senatus Academicus, on the day here appointed, shall assemble at ten o'clock A.M., for the purpose of conferring the degree; and no candidate, unless a sufficient reason be assigned, shall absent himself, on pain of being refused his degree for that year.

The branches taught at the University of Edinburgh are thirteen in number, and thirteen professors are attached to the school. The professors are appointed by the city authorities, and are remunerated by fees from the students (about twenty dollars for each course). To insure the regular attendance of students, they are required to inscribe their names once every month in an album, provided for the purpose, and to deposit cards* with the janitor whenever called upon to do so. The expense of attendance upon lectures, and of graduation at Edinburgh, are very heavy.

* CALLING CARDS.—Students are expected always to carry with them visiting cards, and each professor is required to call for these a certain number of times during the course, and at uncertain periods. Sometimes orders are given to the janitor to demand them as the young men enter the room, and sometimes at the close of the lecture. The professor then checks off in his register the names of those present. At the end of the session a reference is made to these returns, and if it is found that the applicant for a certificate has been absent more than a given limited number of times (except by leave, or for sickness) the certificate is refused; and, without this voucher, which is required prior to examination, the course counts as nothing, and must be followed again.

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Table showing the number of students and graduates at the several Medical Schools of Scotland, during the last five years.

	Session 1844–5.		Session 1845–6.		Session 1846–7.		Session 1847–8.		Session 1848–9.			
	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Students.	Graduates.	Total of Students.	Total of Graduates.
University of Edinburgh.	37	79	330	64	355	58	376	63	373	60*	1804	394
Royal College of Surgeons of Edinburgh.	297	82	222	110	270	95	248	83	253	71	1350	441
University of Glasgow.	172	47	151	36	146	30	157	36	168	39	794	188
College of Physicians and Surgeons, Glasgow.†												
King's College, Aberdeen.	48	32	48	20	54	30	44	24	33	16‡	227	122
Marischal College, Aberdeen.	53	5	51	5	57	8	55	3	62	8	278	29
University of St. Andrews.		45		106		51		39		22		263

Number of students in attendance at the six Medical Schools of Dublin (namely, Peter's St., Peter's St. Original School, Park St., College of Surgeons, Richmond, and Apothecaries' Hall,) during the years indicated, and licentiates of the Royal College of Surgeons of Ireland.

Session 1842–3.		Session 1843–4.		Session 1844–5.		Session 1845–6.		Session 1846–7.		Session 1847–8.		Session 1848–9.			
Students.	Licentiates.	Students.	Licentiates.	Students.	Licentiates.	Students.	Licentiates.	Students.	Licentiates.	Students.	Licentiates.	Students.	Licentiates.	Total of Students.	Total of Licentiates.
537		550		580	47	569	30	559	35		49		50	2795	211

In addition to these, there have been about five licentiates annually from the Royal College of Physicians of Ireland.

The average number of pupils, attending the several hospitals in Dublin, during the last five years, has been about three hundred annually.

* Not returned, expected to be about sixty.

† No returns.

‡ This number does not include the graduates in August of the present year.

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II. FRANCE.

The medical schools in this country constitute collectively a branch of the University of France, and form one of the five divisions of the "Academy of Paris." They comprise three faculties, entitled by law to the enjoyment of equal privileges, and to grant diplomas, the holders of which may practice medicine and surgery anywhere in France. The seats of the three schools are, Paris, Montpellier, and Strasbourg. Besides those here indicated, there are "preparatory," or "secondary schools," established in most of the provincial towns, for affording instruction in Anatomy, Practice of Medicine, and Surgery; and for granting licenses to practice, under many restrictions, however, to an inferior order of medical men, denominated "*Officiers de Santé.*" The lectures on all the branches are gratuitous to the student, the professors being paid, by government, salaries varying from two thousand to ten thousand francs.

Paris School of Medicine.—There are eighteen distinct chairs established in the Paris School of Medicine, and twenty-six regularly appointed professors, who are aided in the discharge of their duties by a number of *agrégés*, or assistant professors.

Courses.—The instruction is at present embraced in eighteen courses of lectures, which are divided into a winter and a summer session. The former commences with the month of November, and terminates in March; the latter begins on the first Monday in April, and is continued until the end of July; August, September, and October, are a vacation. The winter course comprises lectures on Anatomy, Medical Chemistry, Legal Medicine, Surgical Pathology, Medical Pathology, General Pathology and Therapeutics, Clinical Surgery, Clinical Medicine, and Clinical Midwifery. The summer session embraces courses on Medical Physics, Hygiène, Medical Natural History, Accouchements, Physiology, Surgical Pathology, Medical Pathology, Pharmacy, and Organic Chemistry, Therapeutics, Pathological Anatomy, Operative Surgery, Clinical Surgery, Clinical Medicine, and Clinical Midwifery.

The clinical lectures are delivered at the hospitals during five mornings of the week, and usually commence about nine o'clock, or immediately after the visit to the wards. All the other lectures are delivered at the "School of Medicine," and between the hours of ten and four o'clock.

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Inscriptions and Qualifications required from Students.—An "*inscription*" means the registering one's name in a register kept for the purpose. This has to be repeated every three months, and on each occasion the student will receive a card certifying to the fact of his having inscribed. When a young man, whose intention it is to study medicine, presents himself at the bureau of the Faculty, to take out his first inscription, (which, as well as in the case of all subsequent ones, must be done in person,) he is required to deposit with the secretary the following documents: 1st. His certificate of birth. 2d. His parent's or guardian's consent for him to study medicine, should he be a minor. 3d. A certificate of his morality. 4th. His diploma of "Bachelor of Letters."*

A diploma of "Bachelor of Sciences"† is required after the fourth inscription, and prior to the first examination.

If the father or guardian of a student does not reside in Paris, he must introduce some known and respectable citizen, who is willing to become responsible for his good conduct.

The full term of study comprises four years, or sixteen quarterly terms.

Examinations.—Every pupil, before he can gain a diploma from the Paris Faculty of medicine, must submit to five examinations; one of which takes place at the end of his first year of study, and the rest at stated intervals after. The first examination is on the subject of Chemistry, Physics, and Medical Natural History. The second embraces Anatomy and Physiology. The third, Internal and External Pathology. The fourth, Hygiene, Legal Medicine, Pharmacy, Materia Medica, and Therapeutics. The fifth and last, is a practical one, and is conducted at the hospital of the Faculty (*Hôpital des Cliniques*): it consists in selecting two patients from the wards of the hospital, and examining, and prescribing for them in the presence of a committee of three professors. The first four examinations are conducted by two professors and one assistant professor, and three candidates are examined at the same time; for the fifth examination only two candidates at a time are admitted. Physicians and surgeons, graduates of foreign schools, who may be desirous of obtaining a diploma from the Paris Faculty, must submit to

* In lieu of the diploma of Bachelor of Letters, the student may submit to an examination, of one hour's duration, on the French, Greek, and Latin languages, General History, and Geography.

† For the degree of Bachelor of Sciences, the examination is made on Mathematics, Chemistry, Zoology, Botany, Physics, and Mineralogy.

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all the examinations required from students; they must likewise exhibit their diplomas of Bachelor of Letters, and Bachelor of Sciences. If they can show, by proper certificates, that they have studied in a foreign university during two years longer than is required in the Paris Faculty, they are entitled to an immediate examination, on the payment of all charges exacted for the five separately. If they cannot produce proof of having been six years engaged in study, then such time as they have studied will be allowed them, in the proportion of two-thirds; for instance, proof of three years study abroad, is admitted as equivalent to two years in the Paris school, and hence, attendance on lectures will be required for two years only, and so on. The government has the privilege of granting unconditional licenses to foreigners to practice in France. The examinations are conducted in French, and by the professors themselves, or by the assistant professors (*agrégés*). A student is always notified, four days beforehand, of the time appointed for an examination; and if he does not present himself at the hour indicated, he is not allowed to apply for another examination until after the expiration of three months, which are thus lost to him.

Theses.—By an order of the Council Royal of Public Instruction (1838), the theses of all candidates for medical degrees are to consist of written answers to four questions, which are to be drawn by lot. The questions embrace the subjects of the Physical Sciences, Anatomy and Physiology, Surgery and Medicine. A number of questions on each of these branches, are proposed by the Council Royal, and those relating to the different subjects are deposited in separate urns, from each of which the candidate draws one in the presence of the Dean of the Faculty, and after having undergone his second examination. The thesis is to be deposited in the hands of the Dean when the student offers himself for his final examination, and it is referred to some member of the Faculty to examine, prior to its being supported in public by the author. All theses must be printed at the expense of the student.

Every professor delivers, on an average, five lectures a week during each session. The whole expense of obtaining a degree at Paris, is about $200.

Number of students matriculated at the Paris School of Medicine during the following years: 1843, 232; 1844, 251; 1845, 224; 1846, 216; 1847, 230; 1848, 272.

Whole number of medical students in attendance on lectures at Paris, on the first day of January 1849, 1,200.

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III. GERMANY.

The Universities of Germany proper at which medicine is taught, and which have the power of granting medical diplomas, are those of Berlin, Bonn, Breslau, Erlangen, Freyberg, Giessen, Göttingen, Halle, Heidelberg, Jena, Königsberg, Leipsic, Marburg, Munich, Tübingen, Würzburg, Prague, and Vienna.

The course of instruction pursued at all of these institutions is similar in its general features, and amply sufficient to ensure to those who enlist themselves as students a thorough knowledge of medical science, in all its essential and collateral branches. Indeed, many subjects are taught, and insisted upon as necessary for graduation, which we might be disposed to regard as superfluous.

We select one of the *Prussian** institutions as a type of the German colleges.

University of Berlin. 1. *Professors.*—The number of professors employed in teaching medicine is twenty-eight, together with thirty-nine assistants. The first are divided into ordinary, and extraordinary. The ordinary professors receive a salary of from one to two thousand dollars a year each; the extraordinary, from five to eight hundred each; the assistants receive no stated compensation, but have the privilege of taking students, and of lecturing to private classes. All the professors are appointed and paid by the government, and each one delivers at least one, often two lectures a day.

2. *Branches taught.*—The subjects taught as separate and distinct branches are, Psychology, Natural Philosophy, Logic, Metaphysics and Anthropology, Natural Sciences, Physics, Climatology, Theoretical and Practical Chemistry, Botany, Zoology, and Mineralogy, Anatomy, Physiology, History of Medicine, Institutes of Medicine, Pharmacology, Dietetics, Pathology and Therapeutics, Mental Diseases, Surgery, Ophthalmology, Bandages and Instruments, Midwifery, Medical Jurisprudence, Clinical Surgery, Clinical Medicine, Clinical Midwifery, Clinical Ophthalmology, and Dispensary practice.

* In *Austria*, many very minute rules have to be complied with, in order to obtain a diploma, and the greatest obstacles are thrown in the way of candidates, who, *even though they be graduates* of other institutions, must study all the branches over again during six years. The examinations are held every six months, and no student can be promoted to another course until he has passed his examination on the subjects taught during the preceding one. If twice rejected on the first examination, he is not even allowed to continue his medical studies.

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3. *Courses.*—There are two courses of five months duration during each year: these are divided into winter and summer sessions, and there is a vacation of four weeks at the end of each course.

4. *Requirements from Students.*—Besides conforming to numerous police regulations, every candidate for admission into the medical department must undergo a satisfactory preliminary examination on the subjects of Physics, Chemistry, Botany, Natural Sciences, the Classics, Mathematics, History, and the Rudiments of Philosophy; or else present certificates of acquirement in each of these branches from some recognized academy or university. Students are expected to follow from four to six lectures a day, and cannot be admitted to an examination for a degree, until they shall have been in attendance on lectures for four years. (From four to six years are usually required.)

5. *Examinations.*—Besides the preliminary examination to which students are subjected, prior to their being allowed to matriculate, three others are imposed before they can obtain their degree. These are required by law, and are denominated respectively, the *Examen Philosophicum*, *Tentamen Medicum*, and the *Examen Rigorosum.*

The first is held about the end of the second year's study, and embraces the subjects which have been taught during the preceding sessions. The *Tentamen* is, as its name implies, a *test* examination. It consists of a close and minute questioning by one professor on all the branches of science, and is only preparatory to the final test or *Examen Rigorosum.* The object of it is to ascertain if the candidate is prepared to undergo the last ordeal, to which he cannot be submitted without the approbation of the single examiner. Should this person judge him not to be sufficiently advanced, he must continue his studies for some time longer. If successful at the *Tentamen*, he is reported to be fit for questioning, and is then admitted to the *Examen Rigorosum.* This last is conducted in a fair and impartial manner, but is necessarily severe, and calculated to ascertain fully his capabilities. It embraces an investigation of his knowledge of Anatomy, by actual examination and extemporary description of bones and organs, with dissections; of Materia Medica and Pharmacy, by selecting and describing medicinal agents which are placed before him unlabeled, and by writing prescriptions and suggesting combinations; of Operative Surgery, by the performance of operations on the subject, and applying bandages, &c.; of Medicine and Surgery, by the examination of, and indicating the treatment for, a certain number of patients selected from the inmates of

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an hospital, &c. &c.* If successful in his final examination, the candidate is recommended to the Senatus Academicus, and receives his diploma, which, however, is only an academic honour, and confers no right to practice.

The *Examen Rigorosum*, and the *Examen Philosophicum*, are conducted in the Latin language, and in the presence of at least twelve professors. They last for six hours each.

6. *Expenses.*—The whole necessary expenses to the student during his attendance on lectures, including matriculation fee, charge for examinations, printing thesis (which is required to be printed, and publicly defended), and for the diploma, amount to the sum of about one hundred dollars.

University of Munich.†—"The diploma and right to practice medicine (in Bavaria) is conceded under the following regulations: the first two years are devoted to Logic, Metaphysics, Moral and Juridical Philosophy, Philology, History, Mathematics, Geography, Natural History, Ethnography, Physics, Organic Chemistry, Botany, Mineralogy, and Zoology. A satisfactory examination at the end of two years gives admission to the courses of the medical faculty. The student then attends three annual courses of lectures on Anatomy and Physiology, with demonstrations; Pharmacy, Medical Chemistry, External and Internal Pathology, Therapeutics, Materia Medica, the Clinical Institutions, General and Clinical Surgery, Surgical Pathology, Operations, Obstetrics, Forensic Medicine, and Veterinary Medicine. The student undergoes an examination on all of these branches, and makes practical demonstrations in the anatomical theatre. These successfully passed, two years are devoted to practical study, or the *Biennium Practicum*, in clinical hospitals. The duties connected with this position are, the registering of the medical and surgical cases committed to him or witnessed by him, and also notes on his obstetrical cases. These records being submitted to the medical faculty and approved, a final examination is held on all the branches of medicine, which is conducted both by written questions and *viva voce*. The candidate is required to deliver a lecture publicly, and to defend, for two hours, theses written and published by him in Latin or in German. An inaugural dissertation is also required. The whole time of study, under such requi-

* These examinations are very similar in their details to those conducted by the State examiners, and which are given in another part of this Report. *See* Section III.

† From Horner's Introductory Lecture. Philadelphia, 1848, pp. 32.

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sitions, is seven years; viz., two for preliminary studies, three for didactic in medicine, and finally, two years in practice. The expenses of graduating are about the same as in Prussia—nearly one hundred and twenty-five dollars."

Table showing the number of medical students in attendance at each of the German universities during the year 1847.

UNIVERSITIES.	Where Situated.	Number of Medical Students.
University of Berlin	Prussia	276
" " Bonn	"	84
" " Breslau	"	105
" " Halle	"	102
" " Königsberg	"	61
" " Prague	Bohemia	130
" " Freyberg	Grand Duchy of Baden	52
" " Heidelberg	" "	163
" " Vienna	Austria	240
" " Göttingen	Kingdom of Hanover	187
" " Erlangen	Bavaria	33
" " München (Munich)	"	87
" " Würzburg	"	121
" " Giessen	Hesse Darmstadt	62
" " Jena	Saxe Coburg-Gotha	54
" " Leipsic	Saxony	136
" " Marburg	Hesse Cassel	37
" " Tübingen	Würtemberg	100
Total number of Students of Medicine		2030

IV. ITALY.

The following list comprises the Universities of Italy which are authorized to confer medical degrees.

University of Pavia	in	Lombardy.
" " Genoa	"	Piedmont.
" " Turin	"	"
" " Padua	"	the Venetian Territory.
" " Rome	"	" Pontifical States.
" " Bologna	"	" " "
" " Parma	"	Duchy of Parma and Plaisance.
" " Pisa	"	Tuscany.
" " Naples	"	Kingdom of Naples.
" " Palermo	"	Island of Sicily.
" " Messina	"	" " "

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Besides the above fully organized and renowned institutions, to which alone are delegated the right to confer the highest honours in medicine, there are numerous colleges and schools which have the privileges of teaching and of granting certificates—only, however, after a severe course of study and a strict examination—which entitle the possessors of them with the approbation of the authorities, to practice Dentistry, Midwifery, Vèterinary Surgery, Phlebotomy, and the minor operations of Surgery.

As in the case of Great Britain and Germany, we have selected one of the Italian universities to serve as a type for the others—this is the University of Pavia.

Medical Department of the University of Pavia. 1. *Professors.*—Twenty-one professors, and the same number of assistant professors, are engaged in teaching medicine in this institution. They are appointed by government, and after a concours, and the former are paid salaries varying from four hundred to one thousand dollars a year. One lecture a day is delivered by each professor, and these are repeated by the assistants.

2. *Branches taught.*—The branches taught are Physics, Chemistry, Botany, Pharmacy, Materia Medica, Physiology, General and Special Anatomy, General Surgery, Operative Surgery, Bandaging and Apparatus, Ophthalmology, General Pathology, Special Pathology and Therapeutics, Obstetrics, Toxicology, Legal Medicine, Zoology, Comparative Anatomy, Clinical Medicine, Clinical Surgery, and Veterinary Surgery.

3. *Courses.*—There is a winter and a summer course, of five months duration each; with two months vacation.

4. *Requirements from Students.*—Students must be eighteen years of age; produce certificates of acquirement in all the branches of elementary education, or undergo an examination on History, Latin and Greek, Composition, Mathematics, Botany, General Chemistry, Mineralogy and Geology, before they can matriculate. They are expected to follow from five to seven lectures a day, and the shortest time in which they can graduate is four years.

5. *Examinations.*—There are five examinations. The *first* is held at the end of the first year, and the student is questioned upon the subjects of Physics, Chemistry, Botany, Anatomy, and Physiology, which he has been required to study during that year. The *second* examination is held at the close of the second year, and embraces questions on Anatomy (with dissections), Zoology, General

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Surgery, General Pathology, Obstetrics, Pharmacy, and Materia Medica. The *third* examination is on Pathology and Therapeutics, Operative Surgery, Bandages and Dressings, and Toxicology. At the end of his fourth year's study, the student is examined in the same manner on the subjects to which his attention has been directed during that year, viz., Legal Medicine, Comparative Anatomy, Clinical Medicine, Clinical Surgery, and Clinical Midwifery.

These four examinations are held in the presence of all the professors whose courses have been followed, and are conducted in the Italian language. The *fifth*, or final examination (*Examen Rigorosum*), is held in the presence of all the professors, and of the Senatus Academicus. It is exceedingly strict and practical, and corresponds in its details with that of the State examiners in Germany. If the candidate is successful, he is required to write and publish a thesis, which he must defend in public, after which he receives his degree; this, however, *confers no right to practice.*

6. *Expenses.*—As no fees are paid to the professors, the whole necessary expenses attending the procuring of a degree at Pavia are about one hundred dollars.

V. SWITZERLAND.

There are only two universities in Switzerland empowered to grant medical diplomas; they are those of Berne and Zurich, in the cantons of the same names. The course of study pursued, the requirements for the degree, the examinations, and the branches taught, are much the same as those of the German and Italian schools. The professors are paid partly by the State, and partly by those attending their lectures; but the student's fee to the lecturer does not exceed four dollars a year. None but graduates of a university are allowed to become professors, or to teach medicine.

Besides the universities, there are several medical colleges which are allowed to teach, and to grant certificates; but they cannot confer degrees; nor can they be located at any other place than a town, which has a population of at least fifteen thousand inhabitants, and which contains a public hospital.

VI. RUSSIA.

The institutions in Russia and Poland, which are empowered by royal authority to grant medical diplomas, are the following: 1. The Imperial Medico-Chirurgical Academy of St. Petersburgh,

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which is divided into two sections, one being located in the capital, and the other at Moscow. 2. University of St. Petersburgh. 3. University of Moscow. 4. University of Karkof. 5. University of Kiev. 6. University of Kasan. 7. University of Derpbat. 8. University of Varsovia. 9. University of Wilna.

All of these universities are endowed with equal rights and privileges, except the two latter, which are at present in disgrace, in consequence of their professors and students having joined in the great revolutionary attempt against the government.

The Imperial Medico-Chirurgical Academy is, however, the most important and favoured of all literary establishments, and its diploma conveys the privileges of nobility, and the rights of naturalization. The regulations in force in regard to students, subjects taught, courses of study, &c. &c., are the same as in Berlin, and the examinations are exceedingly strict. Indeed, all the medical schools of Russia are modelled after those of Germany, and most of the professors are Germans. Ample evidences of elementary education are invariably insisted upon as prerequisites to admission into the medical classes, and the term of study is of four years duration. All the professors are appointed by the emperor, upon the recommendation of his Minister of Public Instruction, and they enjoy, by right of office, certain valuable and highly honourable privileges. The education of medical students is entirely gratuitous, and the professors are paid salaries, varying from two thousand to four thousand dollars a year each. The heaviest penalties are inflicted upon all who practice their profession in the empire without the proper license. Graduates of all foreign universities, where medicine and surgery are taught, are, on application, admitted at once to an examination before the Faculty of the Imperial Academy, and, if successful, they receive authority to practice. The number of medical students generally in attendance on lectures at St. Petersburgh, is about two hundred and fifty, and most of them are Germans.

VII. UNITED STATES.

We select the University of Pennsylvania, as a model of the medical schools of our own country, from the circumstance of its being the oldest established college. Its rules and requirements are believed to be quite as full and extensive as those of any other institution, and its trustees and professors seem to be as well disposed as any others to accede to the general wish of the profession, as ex-

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pressed through this Association, to favour proper and moderate measures of reform.

Regulations of the Medical Department of the University of Pennsylvania.—The medical department is under the immediate government of the medical professors, who constitute the Faculty of Medicine, subject to the rules and statutes of the Board of Trustees. The Faculty consists of a Professor of Anatomy, a Professor of the Theory and Practice of Medicine, and Clinical Medicine, a Professor of Materia Medica and Pharmacy, a Professor of Chemistry, a Professor of Surgery, a Professor of Obstetrics and the Diseases of Women and Children, and a Professor of the Institutes of Medicine.

The Medical Faculty hold meetings for the purpose of arranging and conducting the business of their department, and for the preservation of order and decorum among the medical students. One of the members acts as Dean, whose duty it is to keep the minutes of the Faculty, to arrange the examinations of the candidates for graduation, to conduct the business of the Faculty at their meetings, and to attend to correspondence.

The session for the medical lectures begins about the first day of October, and ends at the close of March ensuing.

Preliminary lectures are given in the early part of October, commencing on the first Monday of the month, and continuing until the opening of the regular session. Attendance upon these lectures is not essential to graduation.

The commencement for conferring the degree of Doctor of Medicine, is held by a special mandamus of the Board of Trustees, early in April. The following are the rules in force in relation to the degree of Doctor of Medicine.

I. The candidate must have attained the age of twenty-one years, have applied himself to the study of medicine for three years, and have been, during that time, the private pupil, for two years at least, of a respectable practitioner of medicine.

II. The candidate must also have attended two complete courses of the following lectures in this institution: Anatomy, Theory and Practice of Medicine, Materia Medica and Pharmacy, Chemistry, Surgery, Obstetrics, and the Diseases of Women and Children, Institutes of Medicine.

III. Medical students who have attended one complete course in a respectable medical school, where the attendance on two complete courses is necessary to a degree, where the same branches are taught

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as in this, and which is placed upon the *ad eundem* of this school, are permitted to become candidates by an attendance here upon one full course; the rules of graduation being in other respects observed. They are also exempted from the payment of fees, upon attending here a second term.

IV. The candidate must also have attended one course of clinical instruction in the Pennsylvania Hospital, or some other institution approved of by the Faculty of Medicine.

V. When a candidate applies to the Dean for admission, he must exhibit his tickets to prove that the above rules have been complied with.

VI. The candidate, at the time of his application, must deliver to the Dean of the Medical Faculty a thesis, composed by himself, on some medical subject. This thesis is referred to one of the professors, who shall examine the candidate upon it, and make his report thereon to the Medical Faculty.

VII. When a candidate is rejected, his essay will be retained by the Medical Faculty.

VIII. The essay must be in the candidate's own handwriting, and must be written uniformly on letter paper of the same size, the alternate pages being left blank.

IX. General bad spelling in a thesis, or general inattention to the rules of grammar, will preclude a candidate from examination for a degree.

X. A thesis may be published by the candidate if he desire it, the permission of the professor by whom he was examined thereon being first obtained; but no alteration shall be afterwards made in such thesis without the consent of the said professor.

XI. The voting on the case of each candidate is by private ballot.

XII. The candidate shall pay the fees of graduation, at the time of his examination, or before receiving notice of his success; his name may then be entered, but not previously, on the register of passed candidates, for the purpose of being reported to the Board of Trustees and included in the mandamus for a degree.

XIII. Candidates who have passed their examination, and in other respects complied with the regulations, are to be reported by the Dean to the Provost, who will communicate such report to the Board of Trustees, in order that, if approved of by them, their mandamus be issued for conferring the degree.

XIV. The degree will not be conferred upon a candidate who absents himself from the public commencement, except by special permission of the Medical Faculty.

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XV. Graduates of medical schools, on the *ad eundem* list, by attending on a full set of tickets, one complete course in this institution, are put upon the same footing with students who have attended two complete courses here; that is, they may present themselves as candidates for graduation—also, if they attend a second time, the tickets will be free. Such graduates, if of five years' standing, are permitted to attend the course of lectures, upon a general ticket of admission, free of expense, except the cost of the matriculating ticket. But this general ticket does not qualify for graduation.

RULES OF EXAMINATION FOR THE DEGREE OF DOCTOR OF MEDICINE.—1. The names and essays of the candidates are to be presented to the Dean, on or before the first day of February in each year. The candidates are then to be divided, either by their own arrangement or by that of the Dean, into classes, the number of persons in each to be fixed by the Dean.

2. These classes will be designated numerically, and then formed into groups, there being seven classes in each group.

3. No person's name will be received on a class unless his essay be in possession of the Dean; nor is his name to be attached to a class by any other than the Dean, unless he shall have signified his desire to that effect.

4. The classes are to call at the houses of the several professors, or at some other place designated by the latter; and when in attendance, each of the individuals composing a class is to be examined separately, and in the order of his name on the list of his class.

5. Each professor is to keep a list of those examined by him, and opposite to the name of each candidate, is to note the result of his examination, with the view to vote in the affirmative or negative, as to his qualifications for the degree.

6. As the examination of each group of classes shall be completed, the Faculty will meet; the names of the candidates examined are to be read by the Dean; and, as each name is called, the professors are to consult their memoranda, and, if no remarks be made, are to proceed to vote by ballot. Without three negative votes, the candidate is to be considered as having passed, and is to be entitled to his degree. Should three negative votes be cast, the candidate is suspended, but with the privilege of another examination before the whole Faculty in joint session. Upon this second examination, three negative votes reject for that season of examination, but the candidate may present himself in a subsequent season.

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7. A candidate unsuccessful in the first ballot, upon declining an examination before the Faculty in joint session, has the privilege of withdrawing his thesis, without being considered as rejected.

8. If, upon the name of a candidate being called out, one or more of the Faculty have remarks to make in relation to his qualifications, they are to be heard before the vote is taken.

9. The candidates in classes being thus disposed of, the Faculty will then proceed with those who may prefer an examination before the Faculty in joint session; and afterwards with those who, having received three negative votes, may still choose to avail themselves of the opportunity of the second examination offered by the Faculty.

10. Official notice of a successful examination will be delivered upon the fees of graduation being paid, after which, the candidate will insert his own name, with the title of his essay, upon the Register of Graduates. No diploma will be made out, or passed candidate reported to the Board of Trustees, except from an entry upon the Register.

11. If a thesis be found remarkable for any good quality, the fact is to be reported by the professor having charge of the thesis to the Faculty at their meeting, who may take upon it such action as they may deem advisable.

By an examination of the details given in the preceding pages, it will be perceived that the system of instruction in medicine in vogue in European countries is much more perfect and satisfactory than with us. The time required to be devoted to study is not only longer, but a preparatory education is, in all instances, insisted upon as being absolutely essential; and young men, prior to commencing their medical studies, must furnish abundant and satisfactory evidence of their having attained a given, and by no means small amount of academic learning. It is wisely considered that, without preliminary training and knowledge in the several departments of general science, their minds are not properly prepared for receiving instruction in the high and complicated branches of professional education.

The subjects taught in Europe are more numerous, and a much greater proportion of time is devoted to their study than is allowed in the United States. They are so disposed also that they follow each other in a regular consecutive order. The student is thus enabled to prepare himself on a given number of subjects, by close application to their details, in a reasonable period of time; after which he is examined; and, if successful, his mind being relieved of a

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portion of care and anxiety, he is better prepared to commence and prosecute the study of a new series, upon which he is likewise in turn examined, and which he dismisses, for the time being, from his thoughts. How infinitely superior is this course to that which compels him to burden his memory, and toil during the whole period of his attendance on lectures, to keep pace with his preceptors in their endeavours to impart to him instruction on a multitude of subjects, which are crowded together, and a knowledge of all of which must be obtained in the very short space of time allowed by most of our colleges as the period in which their courses are comprised!

Of the branches of medical education taught with the greatest zeal, and which are properly held abroad to be among the most important, there are many which are but slightly regarded in this country, and nowhere taught in a thorough and satisfactory manner. No proper attention is here paid to Practical Chemistry and Pharmacy, and there are but few of our institutions in which lectures are delivered on Botany, Pathological and Comparative Anatomy, and Natural History; and Hospital Clinical teaching, embracing as it does, decidedly the most essential of all the divisions of medical education is rarely followed, and, indeed, in but very few colleges, is any time or attention whatever bestowed upon it. Practical Anatomy, or actual dissection, without which it is universally conceded that no man can be made either a good practicing physician, or a safe operative surgeon, is neglected to such a deplorable extent that some of our colleges even announce, in their published circulars, that attention to it will not be made obligatory upon those who enroll themselves as their pupils!!

The number of professors engaged in teaching medicine and surgery, in connection with European schools is more than double, and, in some instances, four and five times as great as with us. This permits a division of labour, and enables those engaged in imparting knowledge to devote their time and energies to the full and comprehensive illustration of the subjects, the elucidation of which has been committed to them.

In giving our approval to the system which requires a large number of teachers, we would be distinctly understood, however, as advocating it only so far as may be necessary; and while we think that the proportion of instructors is too small in our colleges, and that their numbers ought to be increased, as well as the number of subjects taught, we are far from considering it essential or even proper and expedient, to adopt the German system of subdivision in

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teaching; which would not suit the nature of our people, and is illy adapted to the condition of our country. There are but few persons with us who could incur the expense, or afford to devote the time and attention which are required in Germany and Italy, to matters not strictly pertaining to medicine, the knowledge of some of which it will be readily admitted is by no means essential to constitute a sound and practical prescriber.

The division of the scholastic year into summer and winter courses, which is practiced at all of the institutions abroad, is a judicious one, and worthy of our imitation. Besides possessing other advantages, it permits the proper apportionment of the subjects taught to the seasons in which they can be most advantageously studied. The facilities for acquiring a knowledge of Botany are greatest in the spring and summer; and as this is usually a short course, it is made to embrace, likewise, those subjects which require a comparatively short space of time to be devoted to them; while the more essential and voluminous branches of Anatomy, Surgery, Pathology, and Chemistry, together with others which have to be fully illustrated, go naturally to comprise a long or winter session.

The requirements exacted of students differ in many respects in the two hemispheres. It has been already seen that, in Europe, preliminary education is regarded as so essential that satisfactory testimonials of acquirement in its several departments must be produced, or an examination submitted to; while, in this country, no guarantee whatever, other than a cursory examination on Latin, and this only at one or two institutions, is required. Notwithstanding its great importance, we will not now detain you by a discussion as to the propriety and necessity for following European models in this particular. The subject has been most ably treated in the Report of Dr. Couper to the Philadelphia Convention, and we shall have occasion to consider it in another place.

Punctual attendance upon lectures is left to the volition of the student, both here and abroad, except in Scotland, where it has been seen that measures are resorted to to insure his presence. The advantages of regular attendance are self-evident, and the plan pursued at Edinburgh is feasible, and worthy of being adopted here.

The manner in which examinations are conducted, differs widely in Europe and in this country. A much greater length of time is devoted to them, and they are more comprehensive and numerous there than here. All available means are resorted to, for ascertaining the positive qualifications of candidates, and, as will be seen by

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a reference to the rules of the continental schools especially, which have been selected as prototypes, they are for the most part public, or at least held in the presence of several of the professors; they are both oral and in writing, and the clinical ones strictly practical. In the United States there is for the most part but one examination. At some of the colleges this is conducted in the presence of the whole of the Faculty, but at many of them, and these the most prominent and flourishing, they are strictly private, and each professor questions the candidate on his own subject and apart from his colleagues. The time devoted to questioning, too, is so short, that it is impossible for the examiner to ascertain, without previous knowledge, whether the applicant is qualified or not to receive his degree. The method of conducting examinations for the medical degree in the United States must be admitted to be faulty. It is liable to grave objections and much abuse, and we earnestly direct your attention, as well as that of the colleges themselves, to a due consideration of the subject.

The advantage of having professors made independent of their students, in being paid for their services wholly or in part by the State, are self-evident. This course is pursued everywhere in Europe, except in Great Britain, where teachers are, as in this country, paid by fees alone.

The question has been already broached, and ably discussed in the learned and interesting address lately delivered by the President of this Association, before the Medical Society and Legislature of the State of New York: to this "Plea of Humanity in behalf of Medical Education" we would ask leave to direct your attention. The subject merits due consideration, and if it shall be found practicable in this country to remunerate professors from the public treasury, the advantage of so doing, would, we are convinced, be soon made manifest.

Having thus fulfilled a part of the duty imposed upon us under the Section upon which we are now engaged, and instituted a comparison between the systems of education pursued in Europe and the United States, we append in tabular form a recapitulation of the contents of the preceding pages, which will show, at a glance, the several subjects that we have endeavoured to expound; and then proceed, without further delay, to place before you the statistical and other details connected with the several medical institutions of the United States.

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Synopsis of the most important particulars in regard to Medical Education in different countries.

COUNTRIES AND INSTITUTIONS.	No. of separate branches taught.	Number of professors.	Professors, how appointed.	Professors, how paid.	Number and duration of courses annually.	No. of weeks devoted to lecturing.	Average No. of lectures delivered by each profes. during year.	Average No. of lectures followed by students in each day.	At what age students may matriculate.	Is preliminary exam. or certificate of literary attainment required?	Number of exams. required prior to granting degree.	Are examinations public or private.	Is thesis required?	Is dissecting obligatory?	Is hospital attendance obligatory?	Time required for study.
United States, University of Pennsylvania.	7	7	By trustees	By pupils	1 of 6 months	25	86	5	No limit, but must be 21 yrs. to graduate	No	1	Private, before each professor separately	Yes	No	Yes, for 1 course	3 years, 2 courses of lectures
Great Britain, University of Edinburgh.	13	13	City authorities	By pupils	2 courses 1 of 6 and 1 of 3 months	37	180	4 to 6	Same	Certificates and an examination on Latin	2	Private, before the Faculty	Yes	Yes	Yes, for 1 year	4 years, 8 courses
France, Paris School of Medicine.	18	26	By Government after concours	By the State	2 courses 1 of 6 and 1 of 3 months	37	180	4 to 8	Same	A. B. and A. M., or examination	5	Public, before 3 professors	Yes	Yes	Yes, constant.	4 years, 8 courses
Germany, University of Berlin.	28	28	By Government after concours	By State and pupils	2 courses of 5 months each	41	230	6 to 8	18	Certificates or examination	3	Before 12, and 1 professor, private	Yes	Yes	Yes	4 years, 8 courses
Italy, University of Pavia.	21	21	By Government after concours	By State and pupils	2 courses of 5 months each	41	230	5 to 7	18	Certificates or examination	5	Private before professors	Yes	Yes	Yes	4 years, 8 courses
Switzerland, Universities of Berne and Zurich.	21	10	By Government after concours	By State and pupils	2 courses of 5 months each	41	492	5 to 6	18	Certificates	3	Private before faculty	Yes	Yes	Yes	4 years
Russia, Med.-Chirurgical Academy of St. Petersburgh.	28	28	By the Emperor	By the State	2 courses of 5 months each	41	230	6 to 8	18	Certificates or examination	3	Private before faculty	Yes	Yes	Yes	4 years

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B.

The whole number of institutions at present engaged in teaching medicine in the United States, as far as known to your Committee, is thirty-eight.

Their titles and locations are exhibited in the following table.

MEDICAL COLLEGES OF THE UNITED STATES.

Title.	Where located.	State.
1. Medical School of Maine,	Brunswick,	Maine.
2. Dartmouth Medical College (N. H. Medical Institute),	Hanover,	N. H.
3. Medical College of Castleton,	Castleton,	Vt.
4. Vermont Medical College,	Woodstock,	Vt.
5. Medical Department of Harvard University (Massachusetts Medical College),	Boston,	Mass.
6. Berkshire Medical Institute,	Pittsfield,	Mass.
7. Medical Institute of Yale College,	New Haven,	Conn.
8. Medical Department of University of State of New York (College of Physicians and Surgeons),	New York,	N. Y.
9. Medical Department of University of City of New York,	New York,	N. Y.
10. Albany Medical College,	Albany,	N. Y.
11. Geneva Medical College,	Geneva,	N. Y.
12. Medical Department of University of Buffalo,	Buffalo,	N. Y.
13. Medical Department of University of Pennsylvania,	Philadelphia,	Pa.
14. Jefferson Medical College,	Philadelphia,	Pa.
15. Medical Department of Pennsylvania College,	Philadelphia,	Pa.
16. Philadelphia College of Medicine,	Philadelphia,	Pa.
17. Medical Department of University of Maryland,	Baltimore,	Md.
18. Medical Department of Washington University,	Baltimore,	Md.
19. Medical Department of Columbian College (National Medical College),	Washington,	D. C.
20. Medical Department of University of Virginia,	Charlottesville,	Va.
21. Medical Department of Hampden Sidney College,	Richmond,	Va.
22. Winchester Medical College,	Winchester,	Va.
23. Medical College of the State of South Carolina,	Charleston,	S C
24. Medical College of Georgia,	Augusta,	Ga.
25. Medical Department of University of Louisiana,	New Orleans,	La.
26. Memphis Medical College,	Memphis,	Tenn.
27. Medical Department of Transylvania University,	Lexington,	Ky.
28. Medical Department of University of Louisville,	Louisville,	Ky.
29. Medical College of Ohio,	Cincinnati,	Ohio
30. Starling Medical College,	Columbus,	Ohio.
31. Medical Department of Western Reserve College (Cleveland Medical College),	Cleveland,	Ohio
32. Indiana Medical College,	Laporte,	Ind.
33. Indiana Central Medical College (Medical Department of Indiana Asbury University),	Indianapolis,	Ind.
34. Rush Medical College,	Chicago,	Ill.

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Title.	Where located.	State.
35. Rock Island Medical College,	Rock Island,	Ill.
36. Medical Department of University of the State of Missouri,	St. Louis,	Mo.
37. Medical Department of St. Louis University,	St. Louis,	Mo.
38. Madison Medical College,	Madison,	Wis.*

With the view of ascertaining with precision, and in an official manner, the regulations, &c. &c., in force, in the several colleges, a circular was addressed to the Dean or Agent of the Medical Faculties of all the above institutions, with the following queries, which they were respectfully requested to answer.

QUERIES.

1. How many professors are attached to your school; and what branches do they teach?

2. What is the duration of your session; when does it commence, and when does it terminate?

3. Do your rules require certificates from private instructors prior to granting degrees?

4. How many courses of lectures are your students required to attend before presenting themselves as candidates for graduation?

5. How many hours a day are required for attendance upon lectures; and how many lectures does each professor deliver during the course?

6. Is it *obligatory* upon students to dissect; and are they *required* to attend clinical lectures and follow the practice of a hospital?

7. How are your students examined; and are such examinations public or private?

8. How many negative votes are requisite for the rejection of a candidate?

9. How many students have been in attendance on the lectures in your school during the last five sessions—designating the number for each year respectively, and including the present year?

10. How many have graduated during the same period; how many at each commencement?

* In addition to the schools comprised in the above list, it is in contemplation to establish others at Iowa City, Iowa, and at Ann Arbor, Michigan.

The Franklin Medical College of Philadelphia, and the Willoughby Medical College at Columbus, Ohio, are not introduced into the table, because they are no longer in existence; the former having been closed, and the latter merged into the Starling Medical College.

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11. Have any of the recommendations of the American Medical Association, on the subject of education, been adopted by your faculty? And if so, which are they?

12. Do your State laws require any license for practicing Medicine and Surgery; or is the diploma of M. D. recognized as a license?

13. Has your Faculty any suggestion to offer on the subject of Medical Education, or any remarks to make in regard to such propositions as have been referred by the Association to the Committee on Medical Education? If so, we will be most happy to receive them.

We are gratified to have it in our power to say that our request for the information sought, has been met in a prompt and friendly spirit by most of those whom we addressed, and answers were received from thirty-three of the colleges to which the circulars were forwarded.

A careful analysis has been made of the result of each query, and we append hereto two tables, the first of which contains an exposition of the rules, &c., of each separate institution, and the second, the number of students and of graduates, during the last five years, at all of the colleges from which returns were received.

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private Instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Medical School of Maine, Brunswick, Me.							
Dartmouth Medical College. (N. H. Medical Institution.) Hanover, N. H.	6	Medical Jurisprudence; Surgery, Obstetrics, and Diseases of Women and Children; Materia Medica, and Therapeutics, Medical Botany; Chemistry, Pharmacy; Theory and Practice, Pathological Anatomy, Anatomy; Physiology.	14 weeks, from Aug. 3 to Nov. 9 (or there about). No holidays.	Always. The certificate must be for 3 years' study.	2	6	72
Medical College of Castleton, Castleton, Vt.	6	Theory and Practice; Materia Medica, Obstetrics; Surgery; Anatomy; Chemistry, Physiology; Medical Jurisprudence.	Spring session 16 weeks from last Thursday in Feb. Fall session commences first Thursday in August, continues 16 weeks.	Yes.	2	5	80
Vermont Medical College, Woodstock, Vt.	7	Theory and Practice; Medical Jurisprudence; Institutes of Medicine, Pathological Anatomy; General, Descriptive, and Surgical Anatomy; Materia Medica, Obstetrics; Surgery; Chemistry, Botany.	Session commences last Thursday in Feb., continues 16 weeks.	Always, and for 3 full years of study.	2	6	85
Massachusetts Medical College, Boston, Mass.	7	Midwifery, Med. Jurisprudence; Surgery; Materia Medica, Clinical Medicine; Chemistry; Theory and Practice; Pathological Anatomy; Anatomy, Physiology.	4 months. First Wednesday in November to end of February.	Yes, for 3 years' study.	2	5	See remarks.

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Several Medical Colleges of the United States.

Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
				No official information received.
No.	No.	Examined in presence of all the professors, and also 2 delegates from the N. H. State Medical Society, appointed to participate in the examinations, and report to the State Society.	See remarks.	The Professor of Medical Jurisprudence gives 18 to 20 lectures. The others give courses of about 80 lectures each; the full course being regarded as 72 lectures. Obstetrics is associated with surgery, and this requires an addition of 36 lectures from that professor, to the 72, or 108 in all. There are facilities for clinical instruction. No candidate is admitted to a degree unless the delegates so vote, and also a majority of the professors. In case a single professor objects, the candidate may be admitted to a degree (if the body of examiners so decide) on condition of previously devoting a prescribed amount of time to the study of the department in which he is found deficient.
No.	No.	By the Faculty, in the presence of delegates appointed by the State Medical Society.	2	It is the custom of the professors to examine each student prior to the lecture.
No.	No.	By a board, consisting of the professors, 2 delegates from the State Medical Society, and 5 examiners appointed by the Supreme Court of the State.		The examinations are held in presence of the board, and each member is allowed to examine the candidate to any extent he may desire. All are held responsible for every graduation. * * * *Very few* students present themselves for examination without having previously dissected, and many of them repeatedly.
No.	See remarks.	By the Faculty, usually in 2 separate rooms, not less than 3 professors attending in each. There is no other publicity than this.	4	Candidates for graduation must present certificates of 3 years' study. If not graduated in the Arts, certificates of knowledge of the Latin language and experimental philosophy (or an examination on these branches), evidence of good moral character. * * * The number of lectures delivered is as follows: Midwifery, &c., 58; Materia Medica, &c., 85; Surgery, 66; Chemistry, 66; Theory and Practice, 66; Pathological Anatomy, 17; Anatomy and Physiology, 79; total, 437. * * * It has been customary

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Berkshire Medical Institute, Pittsfield, Mass.	6	Theory and Practice, Obstetrics; General and Special Pathology; Principles and Practice of Surgery; Chemistry, Botany, Natural Philosophy; Anatomy, Physiology; Materia Medica, Med. Jurisprudence.	16 weeks, commencing first Thursday in August.	Yes, for 3 years' study.	2	6	87 See remarks.
Medical Institution of Yale College, New Haven, Conn.	6	Chemistry, Pharmacy; Theory and Practice; Principles and Practice of Surgery; Obstetrics; Anatomy, Physiology; Materia Medica and Therapeutics.	16 weeks, commences last Thursday in Sept.	Yes.	2	5½	
College of Physicians and Surgeons of New York, New York City.	7	Theory and Practice, Clinical Medicine; Materia Medica, Medical Jurisprudence; Chemistry, Botany; Anatomy; Surgery; Obstetrics, Diseases of Women and Children; Physiology and Pathology.	Preliminary course in month of October. Regular session from Oct. 30 to March 29th.	Yes.	2	5	100
Medical Department University of City of New York, New York City.	6	Institutes, Materia Medica, Physiology, Medical Jurisprudence; Principles, Practice, and Operations of Surgery; General, Descriptive, and Surgical Anatomy; Theory and Practice; Midwifery and Diseases of Women and Children; Chemistry.	Preliminary course in month of October. Regular session from last Monday in October to last of February.	Yes.	2	6	
Albany Medical College, Albany, N. Y.	8	Surgery; Mat. Medica; Theory and Practice of Medicine; Chemistry; Obstetrics, and Natural History; Anatomy; Institutes of Medicine; Med. Jurisprudence.	16 weeks. Commences first Tuesday in October.	Yes.	2	6	See remarks.

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
				for the Professor of Midwifery to hold a weekly examination, the Professor of Pathological Anatomy to visit the museum with the students on Saturdays, and the Professor of Anatomy, &c., to give weekly demonstrations of microscopic anatomy. * * * Students are required to take the clinical ticket, which almost necessarily implies attendance on the practice of a hospital.
No.	No.	By a Board of Examiners, consisting of the Faculty, two delegates from the Mass. Medical Society, and any of the trustees who choose to be present. Each member of the board is held responsible for its action.		The number of lectures given by each professor is as follows, viz.: On Theory and Practice of Medicine and Obstetrics, 132; General and Special Pathology, 86; Principles and Practice of Surgery, 86; Chemistry, Botany, and Natural Philosophy, 86; Anatomy and Physiology, 86; Materia Medica and Medical Jurisprudence, 44; total, 520.
No.		By a Board of Examiners, consisting of the Faculty, and 6 members of the Conn. Medical Society. The president of said society is president of the board, and has a vote at all times, with a casting vote when there is a tie.	A majority.	A clinic is held weekly, with an average number of about 12 patients, and the students have access to the Connecticut Hospital. * * * Each professor delivers a lecture daily, except the Professor of Obstetrics, who delivers 3 lectures a week.
No.	No.	Three examinations. 1st. By the Faculty, in Faculty meeting, which examination any of the trustees may attend. 2d. In joint meeting of Faculty and trustees. 3d. Public examination on thesis.		The average number of lectures is 5 per day; besides which, 2 hours per week are devoted to the college clinic, and 2 hours per week to extra examinations. * * * The candidates are usually passed or rejected on the general average of their qualifications, being examined in Faculty meeting, and not by each professor separately, and in private.
No.	No.	By the Faculty individually. In private.		A clinic is held weekly, and midwifery is taught practically.
No.	No.	1st. By the Faculty. If this examination is satisfactory, they have a final examination before the Faculty and 5 curators. The latter must concur in the recommendation for the degree.	2 of the Faculty.	The lectures occupy 6 hours every day except Saturday, which is devoted to clinical instruction at the college. The whole number of lectures given is 480; 4 professors giving each 80 lectures, and the others but 40. * * * Clinical lectures are delivered at the college, but there is no hospital

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Geneva Medical College, Geneva, N. Y.	6	Theory and Practice and Institutes of Medicine; Anatomy; Surgery; Chemistry; Materia Medica, General Pathology; Obstetrics and Diseases of Women and Children.	16 weeks. Commences first Wednesday in March.	Yes.	2	5	88
Medical Department University of Buffalo, Buffalo, N. Y.	7	Physiology and Medical Jurisprudence; Materia Medica and General Pathology; Midwifery and Diseases of Women and Children; General and Special Anatomy; Surgery and Clinical Surgery; Medicine and Clinical Medicine; Chemistry and Pharmacy.	16 weeks. Commences first Wednesday in Nov. See remarks.	Yes.	2	5	70
Medical Department University of Pennsylvania, Philadelphia.	8	Theory and Practice; Anatomy; Materia Medica and Pharmacy; Chemistry; Surgery; Obstetrics, and Diseases of Women and Children; Institutes; Clinical Medicine; and Clinical Surgery.	6 months. Oct. 1st. to end of March.	No.	2	5	94
Jefferson Medical College, Philadelphia.	7	Institutes and Medical Jurisprudence; Materia Medica and General Therapeutics; General, Descriptive, and Surgical Anatomy; Practice of Medicine; Institutes and Practice of Surgery; Obstetrics and Diseases of Women and Children; Chemistry.	4½ months. Middle of October to last day of February.	No.	2	6 hours a day, 4 times a week and 2 hours a day twice a week.	See remarks.

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
				practice. It is believed that a hospital will be established before the commencement of the next session.
Yes.		They are examined in presence of the whole Faculty, and afterwards publicly in presence of the Board of Curators (medical men), who have a veto on the votes of the professors. Three of the curators are, by law, required to be present.	3	Students are examined daily, by each professor, on the subject of the previous lecture. * * * They are required to attend the college clinic.
Yes.	No.	First by Faculty alone. If that examination is satisfactory, by Faculty and curators jointly. A majority of the votes of the curators and Faculty is the basis of a recommendation to council to confer a degree.		The duration of the last term was 20 weeks, with a preliminary term of 4 weeks for dissections. The Faculty, however, have determined that the next term shall be of 16 weeks' duration, with a preliminary course of 4 weeks devoted to dissections, clinical instruction, and lectures on special subjects; this course being gratuitous and voluntary. * * * There are daily examinations upon the subjects embraced in the lectures. The opportunities for clinical instruction are ample. On Wednesdays and Saturdays 2 hours are devoted to attendance at the hospital.
No.	Yes.	Private, before each professor separately.	3	The number of lectures delivered on each branch are, Theory and Practice, 96; Anatomy, 96; Surgery, 96; Institutes, 72; Chemistry, 72; Mat. Med., 72; Obstetrics, 72; Clinical Medicine and Clinical Surgery, 48 each (at the Hospital); Demonstrative Medicine and Surgery, 48 each (at the Univ.).
No.	See remarks.	Examined in private, and by each professor separately.	3	Deducting 1 week for the introductory lectures, and 1 week for the Christmas recess, there remain 17 weeks for regular lectures; during which time, on an average, the Professor of Anatomy lectures 86 times; the Professors of the Institutes, Practice, Surgery, Obstetrics, and Chemistry, each, 69 times; and the Professor of Materia Medica, 52 times. Besides which, 36 lectures on Clinical Medicine, and 36 on Clinical Surgery, are delivered by professors of the college. Further, the Professor of Anatomy delivers, once a week, lectures on Topographical Anatomy. * * * To become candidates for graduation, students must have attended at least one course of clinical instruction, in an institution approved of by the Faculty. One course of such instruction in the College Dispensary is deemed a compliance with this rule.

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Medical Department of Pennsylvania College, Philadelphia.	6	Principles and Practice of Medicine; Obstetrics and Diseases of Women and Children; Materia Medica and Therapeutics; Anatomy and Physiology; Principles and Practice of Surgery; Medical Chemistry and Toxicology.	4½ months. Middle of October to last day of February.	This is optional with the registrar.	2	6 except on clinical days, then 4.	84 See remarks.
Philadelphia College of Medicine, Philadelphia.	7	Anatomy; Institutes and Medical Jurisprudence; Chemistry; Materia Medica and General Therapeutics; Theory and Practice; Obstetrics and Diseases of Women and Children; Surgery; Comparative and Pathological Anatomy.	2 sessions. One 4 months, commencing Nov. 1. The other 4 months, commencing March 10.	Yes.	2	6, see remarks.	See remarks.
Medical Department University of Maryland, Baltimore, Md.	6	Anatomy; Chemistry; Materia Medica and Hygiène; Principles and Practice of Surgery; Theory and Practice of Medicine; Obstetrics and Diseases of Women and Children; Pathological Anatomy.	4½ months. Last Monday of Oct. 15th of March.	No.	2	See remarks.	See remarks.
Medical Department of Washington Univer., Baltimore, Md.	7	Theory and Practice of Medicine; Chemistry and Pharmacy; Anatomy and Physiology; Institutes	Fourth Monday of Oct. 15th of March.		2		

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
Yes.	Yes.	By each professor separately, and in private.	3	The registrar is to be satisfied with the amount of private tuition received by the pupil, and may demand whatever evidence he thinks necessary. * * * The lectures delivered during the last session were as follows: Practice, 100; Obstetrics, 77; Materia Medica, 70; Anatomy and Physiology, 110; Surgery, 75; Chemistry and Toxicology, 70. In addition, the Professor of Practice gave 20 separate public examinations of the class, and the Professor of Materia Medica 15; the other professors examining during a portion of the lecture hour daily.
No.	No.		3	It has been determined to have each of the two courses of lectures hereafter about 5 months' duration. * * * Six hours each day are devoted to lectures, except on Wednesdays and Saturdays. On these, 2 hours are appropriated to hospital, 2 hours to clinical instruction at the college, and 2 hours to lectures. * * * The number of lectures delivered is as follows: Anatomy, 90; Institutes, &c., 48; Chemistry, 64; Materia Medica, &c., 48; Practice, 64; Obstetrics, 48; Surgery, 64; Comparative and Pathological Anatomy, 16; total, 442. In addition, the Professors of Practice and Surgery each give 32 hours of clinical instruction in the dispensary of the college. * * * The students are required to attend these clinical lectures.
Yes.	Yes.	In presence of the whole Faculty.	3	The Professors of Surgery, of Anatomy, and of Theory and Practice, lecture 1 hour, each, daily, giving, in the course of the session, 108 lectures. The Professors of Chemistry, and of Materia Medica, lecture 4 times a week, each, giving 72 lectures. The Professor of Obstetrics lectures 3 times a week, giving 54 lectures. The lecturer on Pathological Anatomy (whose course is obligatory for one session) lectures twice a week, giving 36 lectures. 108 clinical lectures are given by the Professors of Surgery and of Practice, at the University Hospital, which contains 150 beds, and is under the sole control of the Faculty, and which is visited daily by the students in company with the attending physician and surgeon. * * * Each professor examines his class publicly throughout the session, and at hours distinct from those assigned for the regular course.
				Just reorganized.

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
		of Medicine, Medical Jurisprudence and Mental Diseases; Institutes and Practice of Surgery; Obstetrics and Diseases of Women and Children; Therapeutics, Materia Medica, and Hygiene.					
National Medical College, Washington, D. C.	7	Anatomy, Physiology and Medical Jurisprudence; Obstetrics and Diseases of Women and Children; Chemistry; Materia Medica and Therapeutics; Surgery; Pathology and Practice of Medicine.	5 months. 1st Monday in Nov. to end of March.		2	See remarks.	See remarks.
Medical Department University of Virginia. Charlottesville, Virginia.	3	Chemistry, Materia Medica, Medical Jurisprudence, Obstetrics; Principles and Practice of Medicine, Special Pathology and Therapeutics; Anatomy and Physiology, Surgery.	9 months. October 1 to June 29.		1 of 9 months, if the student be qualified.	3	
Medical Department Hampden Sidney College, Richmond, Va.	6	Anatomy and Physiology; Surgery; Chemistry and Pharmacy; Materia Medica and Therapeutics; Obstetrics and Diseases of Women and Children; Theory and Practice.	October 23 to middle of March.	No.	2	5	
Winchester Medical College. Winchester, Va.	5		8 months. October 1 to June 1.	No.	2		96
Medical College of State of South Carolina, Charleston, S.C.	7	Anatomy; Surgery; Physiology; Institutes and Practice of Physic; Materia Medica; Chemistry; Obstetrics and Diseases of Women and Children.	4 months. Nov. 1. First Saturday in March.	No.	2	4½	62

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
Yes.		In the presence of all Professors, not public. Two medical men besides the professors are invited to be present at the examinations.	2	The Professor of Anatomy lectures 6 times per week; the Professors of Medicine and Surgery, 4 times; each of the others 3 times per week. Clinical lectures are delivered on Medicine and Surgery; and the students follow the practice in the hospital (attached to the college).
Yes.	No.	Examinations for the degree are conducted by the Faculty. They are both oral and in writing. The candidate is rejected if unprepared on a single branch.		There are rigid daily examinations on the subject of the preceding lecture, or on portions of some approved text-book. The professors cannot receive fees from private pupils, and are required to reside within the precincts of the University. Attention is paid to the order of studies, the elementary branches being first taken up. After these are mastered, the attention of the pupil is directed to their practical applications. Elementary education is indispensable to graduation.
Yes.		The candidates are examined one at a time, in presence of all the members of the Faculty. Each professor examines on his own branch.	2	The Professor of Chemistry lectures 4 times a week; the Professor of Anatomy and Physiology, 6; the other professors deliver 5 regular lectures a week, and in addition, the Professors of Surgery, Materia Medica, and Practice, deliver each a clinical lecture on Saturday. The time appropriated to each lecture is one hour. The infirmary, connected with the college, affords opportunities of observing the diseases of a southern climate at the bedside of the patient, and witnessing the treatment pursued.
Yes.		By each professor privately and rigidly. Not less than 1 hour is occupied with each student.	2 out of 7	Students are required to attend clinical instruction once a week. * * * They are examined daily by the professors.
Yes.	No.	By each professor in rotation—4 or 5 candidates at a time—in private.	2	

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Medical College of Georgia, Augusta, Ga.	7	Special and Textural Anatomy; Physiology & Pathological Anatomy; Principles and Practice of Surgery; Chemistry and Pharmacy; Principles and Practice of Medicine; Materia Medica, Therapeutics, and Medical Jurisprudence; Obstetrics, and Diseases of Women and Children.	4 months. Nov. 1. to March 1.		2		
Medical Department University of Louisiana, New Orleans, La.	7	Theory and Practice of Medicine and Clinical Practice; Surgery; Chemistry; General and Special Anatomy; Obstetrics and Diseases of Women and Children; Materia Medica, Therapeutics, and Toxicology; Phys., Path., and Path. Anatomy.	4 months. 3d Monday in Nov. to 3d Monday in March.	At the option of the dean.	2		85
Memphis Medical College, Memphis, Tenn.							
Medical Department Transylvania University, Lexington, Ky.	7	Principles and Practice of Surg.; Chemistry and Pharmacy; Spe. and Surg. Anat.; Theory and Pract. of Med.; Gen. and Path. Anat. and Physio.; Mat. Med. and Therapeutics; Obstetrics, and Dis. of Women and Children.					
Medical Department University of Louisville, Louisville, Ky.	7	Descriptive and Surg. Anat.; Physiol. and Path. Anat.; Prin. and Pract. of Surg.; Obstetrics; Mat. Medica, and Med. Bot.; Med. Chem. and Toxicology; Theory and Pract.	October 15 to last day of Feb.	No.	2	6	
Medical College of Ohio. Cincinnati, Ohio.	6	Anatomy; Chemistry; Materia Medica; Midwifery; Surgery; Theory and Practice.	4 months. 1st Monday in Nov. to last day of February.	Yes.	2	6	
Starling Medical College, Columbus, Ohio.	7	Obstetrics and Diseases of Women and Children; Practice of Medicine and Physical Diagnosis; Surgery; General and Special Anatomy; Materia Medica, Therapeu-	4 months. 1st Monday in Nov. to last of Feb. Preliminary course of 1 month.	Yes.	2	6	74

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
Yes.		Private.	3	
Yes.	Yes.	Examined in presence of the whole Faculty.	2 out of 7	On 4 days in the week there are 7 lectures a day; on 2 others 3 lectures and examinations. Three of the professors give 102 lectures each—one gives 85, and the others 68.
				No returns received.
				No returns received.
Yes.	Yes.	By each professor at his own room, and in private; no professor is at liberty to intimate to another the result of his examination before the final vote is taken.	3	
No.	No.	In private.	3, see remarks.	Each professor examines his class daily, for 15 minutes, on the preceding lecture. * * * If a student fail, in two of the departments, to give satisfactory replies, both during the session, and in the last examination (for the degree), he is rejected.
Yes.		By each professor, in his own department, and in private.		The preliminary course consists of 3 lectures daily, during the month of October. The subject of *insanity* will form an important part of this course. The design is to continue the school during the year.

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
		tics, and Medical Jurisprudence; Special Physiology and General Pathology; Chemistry and Botany.					
Medical Department Western Reserve College (Cleveland Medical School), Cleveland, Ohio.	6	Anatomy and Physiology; Chemistry and Medical Jurisprudence; Materia Medica and Botany; ory and Practice of Physic; Surgery; General Pathology and Obstetrics.	16 weeks. Session commences first Tuesday in November.	Yes.	2	6	
Indiana Medical College, Laporte, Ia.	7	Anatomy; Physiology and Pathology; Surgery; Midwifery; Theory and Practice; Materia Medica; Chemistry.	16 weeks. 1st Monday in Nov. to latter part of Feb. Fall course in October.	Yes.	2	6	About 80
Indiana Central Medical College, Indianapolis.	7	Surgery and Surgical Anatomy; General and Special Anatomy; Physiology and Pathology; Theory and Practice of Medicine; Materia Medica, Therapeutics, and Medical Jurisprudence; Obstetrics, and Diseases of Women and Children; Chemistry and Pharmacy.	4 months. Commencing first Monday in November.		2		
Rush Medical College, Chicago, Ill.	7	Surgery; Anatomy; Theory and Practice; Chemistry; Materia Medica, Pharmacy, and Jurisprudence; Obstetrics and Diseases of Women and Children; Physiology and Pathology.	16 weeks. Commences first Monday in November.	Yes.	2	6	96
Rock Island Medical School. Rock Island, Ill.	7	Theory and Practice; Surgery; Anatomy; Midwifery; Chemistry; Physiology, Pathology, and Medical Jurisprudence; Materia Medica and Therapeutics.	4 months. Nov. 1 to March 1.	Yes.	2		
Medical Department University of State of Missouri. St. Louis, Mo.	7						

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
No.		By the professors, aided by a Board of Censors, consisting of 5 physicians. The duty is performed in joint session, the censors having an equal vote with the professors. Not public.	See remarks.	Each professor marks the standing of the candidate examined, according to a numerical method, on a scale commencing with cypher, and terminating at 10. Each censor keeps, also, his private marks. If, on comparison of the result, an average of more than 5 is obtained in all the branches, the candidate is regarded as having sustained himself in this particular. Yet still a majority of all the votes is required to pass him.
Yes.		Students are examined before the whole Faculty, and in presence of the curators, if any desire to be present.	3	Students are required to dissect and attend clinical lectures, as far as practicable. No hospital is attached to the college.
				This school is designed to go into operation in November, 1849.
Yes.	Yes.	By each professor on his own branch. The trustees and curators are at liberty to attend the examinations.	2	
Yes.		By each professor privately.	3	
				No returns received.

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Institutions.	No. of Professors.	Branches taught.	Duration of Session. When lectures commence and close.	Are certificates required from private instructors?	No. of courses of lectures required to be followed.	Average No. of hours devoted daily to lectures.	Average No. of lectures delivered by each Prof.
Medical Department St. Louis University. St. Louis, Mo.	9	Principles and Practice of Medicine; Principles and Practice of Surgery, and Clinical Surgery; Chemistry and Pharmacy; Obstetrics and Diseases of Women and Children; General, Descriptive, and Surgical Anatomy; Materia Medica and Therapeutics; Physiology and Medical Jurisprudence; Clinical Medicine, and Pathological Anatomy.	4½ months. 16th Oct. to March 1. Preliminary course from 1st to 16th of October.	Yes.	2	6	80

Statistics of the Medical Colleges of the

No.	Title.	1844–45.		1845–46.		1846–47.	
		Students.	Graduates.	Students.	Graduates.	Students.	Graduates.
1	Medical School of Maine						
2	Dartmouth Medical College	78	20	83	24	50	29
3	Medical College of Castleton						
4	Vermont Medical College	95	19	91	25	96	24
5	Med. Dep. Harv. Univ. (Mass. Med. Col.)	157	30	159	47	164	48
6	Berkshire Medical Institute	145	51	142	33	149	42
7	Medical Institute of Yale College	43	11	53	19	52	21
8	Medical Dep. of Univ. of State of N. Y. (College of Physician and Surgeons)	193	41	218	48	195	57
9	Med. Dep. of University of City of N. Y.		120		131		123
10	Albany Medical College	104	22	115	42	100	30
11	Geneva Medical College	183	55	179	43	158	49
12	Medical Department University of Buffalo					68	18
13	Med. Depart. of Univ. of Pennsylvania	447	158	464	171	413	162
14	Jefferson Medical College	409	116	469	170	492	181
15	Med. Depart. of Pennsylvania College	60	14	94	36	95	32
16	Philadelphia College of Medicine						
17	Medical Depart. of Univ. of Maryland	106	43	127	44	157	55
18	Med. Depart. of Washington University						
19	Medical Depart. of Columbian College (National Medical College)	39	6	33	11	29	6
20	Med. Depart. of University of Virginia						
21	Med. Depart. Hampden Sidney College	71	18	74	17	75	17
22	Winchester Medical College						
23	Medical College of State of S. Carolina	198	74	210	74	204	74
24	Medical College of Georgia	118	33	112	30	106	33
25	Medical Depart. of Univer. of Louisiana	98	19	102	23	166	31
26	Memphis Medical College						
27	Medical Depart. of Transylvania Univer.						
28	Medical Depart. of Univer. of Louisville	186	71	345	73	348	75
29	Medical College of Ohio	215	45	198	48	177	53
30	Starling Medical College						
31	Med. Depart. of Western Reserve Coll.	109	29	167	53	213	53
32	Indiana Medical College	46	9	65	14	90	19
33	Indiana Central Medical College						
34	Rush Medical College	37	10	46	9	70	16
35	Rock Island Medical School						
36	Med. Depart. of Univer. of State of Mo.						
37	Medical Depart. of St. Louis University	50	17	52	12	57	14
38	Madison Medical College (Wisconsin)						
39	Franklin Med. College of Philadelphia						
	Total	3187	1031	3598	1197	3724	1262

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Is dissecting obligatory?	Is hospital attendance obligatory?	How students are examined. Are examinations public or private?	How many negative votes reject a candidate?	REMARKS.
Yes.	Yes.	Students are examined usually separately, by each professor, but sometimes before the assembled Faculty. These examinations are open to the President and Board of Trustees.	3	The students attend at the hospital daily from 7½ to 9 o'clock A. M. There are 9 clinical lectures per week, during the whole term, delivered at the hospitals. The half of 2 days in the week is spent in the hospitals.

United States, from 1844 *to* 1849, *inclusive.*

1847–48.		1848–49.		Total No. of Students for 5 years.	Total No of Graduates for 5 years.	Remarks.
Students.	Graduates.	Students.	Graduates.			
						No returns received.
51	10	52	11	314	94	Known as the N. H. Medical Institution.
		70			163	Returns incomplete. Total of graduates, however, correct.
94	25	105	29	481	122	
139	33	126	25	745	183	
131	50	122	26	689	202	
45	12	38	11	231	74	
194	56	175	39	975	241	
	133	411	147		654	Returns incomplete.
87	20	88	24	494	138	
115	27	115	36	750	210	
92	31	78	19	238	68	Organized in 1846.
508	176	499	182	2331	849	
480	178	477	188	2327	833	
99	42	102	36	450	160	
114	35	155	51	269	86	Incorporated January, 1847.
175	67	179	68	744	277	
						No returns; being reorganized.
28	4	39	8	168	35	
						No statistics returned.
70	21	72	24	362	97	
						No statistics returned.
192	78	141	45	945	345	
151	55	133	36	620	187	
162	30	143	28	671	131	
						No returns received.
						No returns received.
405	94	332	81	1616	394	
178	52	175	50	943	248	
139	32	173	50	312	82	In existence but two years.
240	71	248	69	977	275	
117	27	110	21	428	90	
						Organization not yet complete.
143	31	90	18	386	84	
		50	21	50	21	In existence but 1 year. Is a branch of the Madison Med. College of Wisconsin.
						No returns received.
81	21	101	27	341	91	
						Just organized.
42	10			42	10	Organized in 1847. Closed in 1848.
4272	1421	4599	1370	18,899	6414	

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As it is deemed advisable to have the statistical portion of the Report *perfectly accurate*, as far as it goes, care has been taken to exclude all returns but such as have been furnished to the committee officially. Many of the blanks opposite to institutions from which no returns were received, might have been filled from the annual statements published in the journals; these could not be relied upon, however, as being perfectly correct, and hence, as has been seen, they are omitted.

It has been already stated (in note to page 282) that the Franklin Medical College of Philadelphia has been discontinued. We had been informed that it was expected to reopen, ere long; but the late Dean of the Medical Faculty states, in his reply to a letter which was addressed to him officially, that "there is no immediate prospect of a reopening of the college."

Medical colleges are in process of organization at Iowa city, the capital of the State of Iowa, and at Ann Arbor, Michigan—the latter in connection with the University of the State of Michigan; they are expected to go into operation in the month of October or November next. It is also rumored that medical schools will be established, ere long, at Natchez, and Jacksonville, in the State of Mississippi, and at Galveston, in the new State of Texas.

The foregoing tables are so comprehensive, that but little remains to be added by us to this section of the report. We deem it advisable, however, to lay before you extracts from some of the communications received from the Medical Schools, in answer to the queries contained in our circular, particularly to questions 11 and 13. We regard them as highly important, showing, as they do, how far the recommendations of the Association have been complied with, and what are the views of those engaged in teaching in different sections of the country, in regard to reform. We select such as are thought to be most important, and introduce them without comment.

EXTRACTS.

From a letter from *N. H. Medical Institute:*—

"We had a term of sixteen weeks for a few years, but found it expedient to give the same amount of instruction in less time, that those of our pupils who wished might go to attend a winter course

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at some city school, and those who are obliged to teach, may commence their lectures in due season."

"With the exception of lengthening the term of lectures to five or six months, the recommendations of the American Medical Association have been complied with, essentially, for years past, and, therefore, before the organization of said Association."

From the Dean of the Faculty of *Castleton Med. College:*—

"I would respectfully suggest, on my *own individual responsibility*, that low fees and the credit system, as adopted by many of the country schools, and, above all, the fact that little or no preparatory education is required of the student, induce many to enter the profession who are by no means qualified to do so, and keep many out of it, from the low standard of professional acquirement."

From the *Vermont Medical College:*—

"Our regulations, of which the above (see table) is a partial summary, have been in operation for several years. Nine years since, and the course of lectures occupied but thirteen weeks, and was given by four professors. The extension of the time occupied by the session, and the increase of the number of the professors, together with some minor changes, were all effected, I believe, before the American Medical Association made any recommendations upon the subject of medical education."

From the Medical Department of *Harvard University:*—

"No particular change has been made in consequence of the recommendations of the American Medical Association."

From the *Berkshire Medical Institute:*—

"None of the recommendations of the American Medical Association have been adopted; but this institution has for many years opened its final examinations to the inspection of the profession, and invited delegates from the physicians of the State to participate in them, both by voice and vote."

From the *Medical Institute of Yale College:*—

"No change has been made in our regulations—most of which are governed by State laws—for several years.

"We have no particular suggestions or remarks to offer on these subjects."

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From the *College of Physicians and Surgeons, N. Y.:*—

"Since the meeting of the Convention in 1847, a new professorship has been established—that of physiology and pathology. The regular course has been prolonged to five full months."

From the *Albany Medical College:*—

"No change has been made in the institution, in the mode of instruction or regulations."

From the *Geneva Medical College, N. Y.:*—

"One recommendation has been adopted, viz., that no student shall graduate who has not dissected, and attended to Practical Anatomy at least four months, under the direction of the demonstrator."

"This Faculty deem that the practice of *extending credit* to medical students, for admission to lectures, is derogatory to the schools that practice it, and highly injurious to the profession, and ought, therefore, to be denounced by the Association."

"The Faculty believe that a session of *four calendar months* is as long a period of study as is profitable for attendance on lectures, or compatible with the pecuniary and other circumstances of American medical students, and that it should be recommended to all schools to conform to this period."

"The Faculty would recommend the appointment of local boards in each county, for the purpose of examining candidates for the study of medicine, none being admissible into a medical school without the recommendation of said board."

From the *Buffalo Medical College, N. Y.:*—

"I believe most of the recommendations of the Association have been adopted. The term was extended to five months,* with a preliminary term of one month; dissections have been rendered obligatory; the classes are examined daily upon the subjects embraced in the lectures. We had previously determined not to take certificates of tuition from irregular practitioners. We give certificates of attendance at the end of the term to those who remain during the session, and have been constant at the lectures. We have ample opportunities for clinical instruction.

"I am instructed by the Faculty to say, that they deem it very desirable that *uniformity* in the length of term, requirements for

* Now reduced again to four months. See table.

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graduation, &c., among all the schools, should be effected. Aside from this they have no suggestions to offer."

From the *Jefferson Medical College:*—

"Several of the measures recommended by the Association have been virtually in force in this school, and the lecture term has been extended to four months and a half.

"Our Faculty beg leave to remark, that the legal power possessed by chartered medical schools of teaching, and granting diplomas, has, by some, been held to be a power of teaching and licensing to practice; and it is contended that teaching and licensing ought to be separated. Now a medical diploma is merely a certificate of a body of men that, in their opinion, a certain person, named in the diploma, is competent to practice medicine and surgery, and is, in no sense, a license to practice. It is to be taken for what it is worth; and public opinion alone can decide its value. The question whether a license is or is not necessary to practice, is one exclusively appertaining to the legislative power.

"Our Faculty beg leave to press upon the attention of your committee, the importance of a recommendation, emanating from the Association, that its members should decline to receive as private pupils, persons who do not possess the preliminary education necessary to fit them for entering upon the study of medicine. Such a recommendation, strictly complied with, would arrest a serious evil at its inception, and save many young men from the mortification of finding, after the waste of much time, that they had mistaken their vocation."

From the *Medical Department of Pennsylvania College:*—

"None—except this one suggestion. Either our American system of medical education, by private preceptorship mainly, with the college and hospital as its complement, is radically wrong, or it is not. Either we should labour to perfect it, according to its idea, or we should abandon it for another. If the system which brings the whole circle of medical education within the province of the school is correct, so let it be understood and established. But until that is done, let the first stand. Any attempt to alter and amend it, according to an essentially distinct plan, will prove a ruinous patching. We fear that the recent so-called reform agitation, tends to loosen the connection of the preceptor with his pupil, and to lessen his responsibility, without adequately supplying the loss. Such

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must be the effect of any considerable increase in the length of the course of lectures. Such a result we would regard as more mischievous than any good that could possibly be attained."

From the *Philadelphia College of Medicine:*—

(In answer to query 11.) "The one relative to examinations, and, hereafter, the increased length of the course."

From the *Medical Department of the University of Maryland:*—

"Eight years ago the Faculty tried, for two successive sessions, a course of six months' duration—commencing in September and closing in March. Students were not *required* to attend during the first two months, unless so disposed. The experiment was abandoned, because few students chose to avail themselves of the preliminary course, and because other schools did not co-operate in the attempt to extend the period of instruction."

(In answer to query 11.) "The Faculty have modified their requirements in the following manner: 1st. They have extended the session from sixteen to eighteen weeks. 2d. They have created a lectureship of Pathological Anatomy, attendance upon which is imperative, which lectureship it is proposed to convert into a professorship. 3d. They have made attendance upon clinical instruction, and the study of practical anatomy in the dissecting room, obligatory upon all candidates for graduation. 4th. They have for several years pursued a system of frequent public examinations upon the lectures given in the hall, attendance upon which has been punctual, and the beneficial effects of which they can scarcely exaggerate. 5th. They have made it optional with the student to present a thesis, or a clinical report of cases. At the examinations held in March, thirteen such reports were presented, many of them drawn up with much ability and care."

(To query 13.) "The Faculty of this school strive to do their duty by diligent and punctual attention to the various parts assigned them. They neither attempt nor expect to make all the young men who resort to their lecture rooms, perfect physicians. They exact from them assiduous attendance, reasonable devotion to study, fair appreciation of the subjects taught, good characters and habits. They allow for the difference of original capacity, means, and opportunity, and apply no invariable test in withholding or bestowing their honours."

"They advise, and the advice is founded upon actual experience,

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that students attending public lectures should be frequently examined; that constant attendance upon clinical practice and instruction should be exacted; and that industrious application to the study of practical anatomy should be enforced and insured."

"If the wishes of the Faculty, with regard to the great point upon which improvement in the profession depends, could be met, no one would be sent to them with an inadequate amount of preliminary preparation. They do, honestly and uprightly, all they can do, to train their students in the love and pursuit of scientific truth; but they are sincerely conscious how imperfectly many of them are prepared, by previous discipline, to appreciate such truth. Hence they feel that the labour of elevating "the standard of Medical Education" does not belong solely and exclusively to the public teachers of medicine, but should be shared by the private practitioner, who has a fairer opportunity of learning and testing the capacity and qualifications, physical, moral, and intellectual, of those who enter upon the study."

From the *National Medical College*, Washington City:—

"Several" (of the recommendations) "have been adopted, such as the extension of the term (from four to five months), &c."

From the *University of Virginia*, by one of the Medical Faculty:—

"Your circular, under an enclosure of the 28th ult., came to hand in due course of mail. As we have no Dean to our Medical Department, and as our Secretary is an officer to the whole University Faculty, and is not one of the corps of instructers, and therefore scarcely competent to reply, I have taken upon myself the pleasant duty of acknowledging its receipt." * * * *

"The queries which your circular contains, are so framed as to address themselves very directly to the great majority of the Medical Schools of our country, all of which are on the same general plan, and conduct their instruction in very much the same way."

"They are comprehensive, and appear to me to be much to the point. They admit of direct and brief replies, and, if answered in a spirit of candour, are likely to furnish valuable information to the Association, at the same time that they afford to each institution the opportunity, in a few words, of fully and fairly representing itself. They will hardly fail, I think, to elicit a very general response."

"The organization and system of instruction in our Medical De-

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partment, however, is so peculiar, and I believe so entirely unlike all other Medical Schools of the Union, that to reply to each question *briefly* and *categorically* would, in many instances, not only place us in a false light, but would fail entirely to give that accurate information which is sought for by the circular."

"Nothing short, I conceive, of a detailed explanation of our whole plan, could enable those who have been familiar only with the *usual* arrangements and requisitions of Medical Schools, to understand and appreciate fully the advantages which we think our system embraces."

"To give you this explanation, would be in a great measure to repeat what is already contained on the subject in our printed catalogues. I have thought, therefore, that I cannot respond better to the spirit of your circular, than by sending you a copy of the one which has been issued for the present session. In it you will find, by the pencil marks which I have made, notices of the length of our sessions, the system of daily roll-call and examination, the monthly circulars sent to the parents or guardians, of the intermediate and graduating examinations, as well as of the English examination, to which each candidate is strictly subjected. To these I may add, that each lecturer occupies one hour and a half, instead of about fifty minutes, as is usual. Of this, from one-half to one hour is devoted to a sifting examination upon the topics of the previous lecture."

"An idea may be formed of the rigidness of the examination for graduation, when it is known that, out of the class of last session, numbering sixty-six, only ten received diplomas, and that about the same proportion usually succeed. Inadequate preparation in *any one* of the seven subjects is sufficient to reject a candidate."

"I enclose for your *private* information, a copy of the questions proposed by us to our candidates three years ago, as a sample of what is expected of them. It is the only occasion on which they have been printed, and then, simply for the information of the friends of the University. The examination occupied the candidates about twenty hours in writing the answers."

"Our system is apparently working well, certainly for the prosperity of our school. We are in a more flourishing condition than ever before, having a class nearly 30 per cent. larger than that of last year, and the prospect of a further improvement next session."

"About forty of our last year's class have spent the past winter at the schools of your city and Philadelphia, and we have learned that

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they have been successful in their examinations, with scarcely an exception."

From *Hampden Sidney College, Va.:*—

"Our Faculty have never been represented in the American Medical Association, and none of its recommendations have been formally adopted."

From the *Winchester Medical College, Va.:*—

"Previous to the organization of the 'American Medical Association,' our institution adopted the long session, and daily examinations, which the 'Association' subsequently recommended."

"The experience of the Faculty is, that the system of regular examinations, recapitulating each preceding lecture by a close examination, is attended with the most beneficial results, and, indeed, of more value to the student than the lecture itself. The incentive to study to prepare for the examination is great, and our experience satisfies us that it could not be omitted, or anything substituted for it."

From the *Medical College of the State of South Carolina:*—

"The only recommendation of the American Medical Association adopted by the Faculty, was the prolongation of the session (five months), which has been abandoned from a conviction of its unsuitableness."

"The Faculty have nothing to suggest on the subject of Medical Education. They are opposed to the adoption of all half-way recommendations by the Medical Colleges—to all unsubstantial prefixes and suffixes. A uniform and earnest adoption of the entire scheme they will enter into whenever they are satisfied that it is to prevail."

From the *University of Louisville:*—

"The recommendation of the American Medical Association, so far as to increase our session two weeks, was adopted."

"On the 1st of February, 1845, the following preamble and resolution were adopted by our Faculty, and a copy sent to all, or nearly all, the Medical Schools of the United States; a few only of the schools responded:—

"*Whereas*, students of medicine are in the habit of leaving the institution, in which they have matriculated, before the end of the

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session, whereby they lose many lectures, in all respects as important as those to which they have listened, while their departure raises impatience and inquietude in the minds of those who remain behind, all of which tends to impede the improvement and elevation of the profession, therefore:—

"*Resolved*, That, after the present session, the Dean, at the close of each term, shall issue tickets of dismission; and no student shall be examined for a degree who does not present such ticket with the tickets of the professors;—*provided*, however, that, for special and satisfactory reasons, the Faculty may grant leave of absence before the end of the term; and provided also, that this resolution shall not take effect, until it be adopted by such a number of the schools of the United States as at this time embrace a majority of two-thirds of the pupils in attendance upon the whole."

"From the indifference, exhibited by some of the largest schools, on this subject, our Faculty have despaired of carrying this regulation into effect."

From the *Medical College of Ohio:*—

("11th). Only the more particular examination of the students during the session, and, more especially, of the candidates for graduation."

("13th.) Medical education, in this State, has been injured by a cheapening process," &c. &c.

From the *Starling Medical College:*—

"As we approve most cordially of every effort that promises to advance the cause of medical education, we hope very soon to show our faith in the necessity and beneficence of this progressive movement, by adopting all the suggestions of the 'Association,' which our *Western* situation will render practicable."

From the *Cleveland Medical College:*—

"We have held in respect the doings of the American Medical Association, and believe that we are more and more fulfilling the ends which they have had in view; but we have thought that we could not, with advantage to the public or the profession, vary our plan."

"Finally, I beg leave, in behalf of our Faculty, to add, that we do not believe that the effort to introduce prolonged courses of lectures, or preliminary courses in addition to the ordinary ones, will

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accomplish the end designed. We do not believe, indeed, that it is expedient or practicable to secure a thorough medical education by means of lectures alone. It is indispensable that there be study of standard authors, and, if possible, the aid of competent instructors in these studies. Nor do we believe, that following the professors, for a few months, through the wards of a hospital, constituted as American hospitals for the most part are, is an indispensable preparation for the practice. We are disposed to regard a medical clinique, in which great numbers of patients come into the lecture rooms, where numerous and varied surgical operations are performed, as no way inferior in benefits afforded, to hospitals, which, in some instances, at least, are little more so than in name. As securing a preparation for the practice of physic and midwifery merely, we regard a year's connection with a respectable and intelligent physician in the capacity of an assistant, as superior in advantages to the mere act of following a professor in masses through a hospital without the opportunity to participate in any way in the proper cares of the sick. It appears to us desirable, therefore, that students should give proof of having given active attendance on the sick, under the direction of a competent superior, for at least one year, as one of the most necessary preliminaries to his entering upon the proper responsibilities of practice."

"There is another article connected with the prosecution of medical studies by lectures, to which we beg leave to call your attention. It is this. Many students, who are more desirous of obtaining the parchment conferred by colleges, than knowledge, take tickets, attend a few weeks, and return home; the next year they attend at another and different school, presenting their tickets as testimonials of previous attendance on a course of lectures, and thus evade one of the leading requisitions of the colleges. We would propose, then, instead of tickets being received by the schools, that formal certificates of each student having diligently attended the course, as well as of his proper conduct during the term certified for, be demanded, in all cases, as proof of such attendance and conduct; and we hope that such a regulation may be recommended by the Association, and adopted by all the schools."

"I have remarked, above, that we have no confidence that any benefit will arise to medical science from the present effort to establish preliminary courses, or prolonged courses of lectures. Our view upon this point is that, there is no safety in a mass of young men being removed so entirely from the supervision of seniors, as our

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medical students are, while in attendance on medical lectures, further than they can be kept in a state of full and constant occupation; but such application cannot be continuously rendered, for a period more prolonged than sixteen weeks as most of the professors of our schools have learned from ample experience. Whatever, therefore, cannot be effected by sixteen week courses of lectures, so arranged as to keep students fully occupied, leaving no leisure for dissipation, had far better be accomplished under private instructors."

From the *Indiana Medical College:*—

"A seventh chair has been created, in accordance with the recommendation of the Association, and a fall and spring course adopted, so as to extend the lecture term to nearly six months."

From the *Rush Medical College:*—

"The recommendations of the Association regarding the hospital practice, and the number of chairs, have been adopted, and we have signified, through the *North Western Medical Journal*, our disposition to go with the other Western schools in the adoption of other rules, in accordance with those recommendations. I subjoin the resolutions of the Faculty, which will answer your query more fully."

"*Preamble and Resolutions unanimously adopted by the Faculty of Rush Medical College, at a meeting held,* January 3d, 1848.

"WHEREAS, a National Medical Association has been organized for the purpose of advancing the interests of the profession, whose recommendations, thus far, have been judicious and worthy of adoption, therefore,

1st. "*Resolved,* That the Faculty recommend to the Board of Trustees, the creation of a chair of Physiology and Pathology, and to increase the number of professors to seven, and that a course of Medical Jurisprudence be added to those now given in this institution.

2d. "*Resolved,* That attendance upon a hospital, during one session, and the pursuit of dissections for twelve weeks, shall be required of all candidates for graduation.

3d. "*Resolved,* That we stand ready to comply with the remaining resolutions of the Association, as soon as they shall be generally adopted by the medical schools of the West; or, when it shall be apparent that the interests of the profession require it."

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From the *Medical Department of St. Louis University:—*

"The recommendations of the American Medical Association, adopted by our Faculty, are those touching the lengthening of the term, and the requiring of students to dissect, and follow the practice of hospitals. Not having a copy of these recommendations at present before me, there may be others which, for the moment, I may not recollect."

"Our Faculty are both willing and desirous to aid in all efforts to advance the great cause of medical education in our country, and to elevate the standing and character of the profession. Five of our number are personally familiar with the European schools, and know what our own should be."

SECTION II.

The Requirements of the United States Army and Navy Boards of Medical Examiners. Also, those of the British Army and Navy.

No alterations, that we are aware of, have been lately made in the regulations of the Army and Navy Boards of Medical Examiners; and, as information on this subject has been already afforded by the committee which reported to the Philadelphia Convention of 1847, it might be deemed superfluous for us to enter into very minute details.

We are desirous, however, to present a complete and connected statement of the rules, &c., now in force in both these departments of the public service, and likewise to introduce the requirements of the British Army and Navy Medical Boards, in order to carry out the plan which we have adopted, and afford material for instituting a comparison between the rules and exactions prevailing in the two countries. We hope that our doing so may not be considered a work of supererogation; for it must be borne in mind that the report to the Convention alluded to, does not form a part of the proceedings of this body, and it is considered important that an early volume of your "Transactions" should contain all available information on the subject. We believe that such information could not be more opportunely introduced than in the present connection.

With the view of obtaining official information from the most authentic sources in regard to the matter under consideration, letters were addressed to the recognized heads of the two departments,

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viz., the Surgeon General of the United States Army, and the Chief of the Bureau of Medicine and Surgery attached to the Navy. Both of these officers have politely responded to our call, and we proceed to lay before you the communications with which they have favoured us.

I. UNITED STATES ARMY.

Letter from the Acting Surgeon General of the United States Army, with Rules, &c., in regard to Examinations for Admission into the Medical Staff of the Army.

SURGEON GENERAL'S OFFICE.
April 10*th*, 1849.

SIR: Your communication of the 6th instant, asking for information as to the "requirements demanded of applicants for admission as Medical Officers, into the Army," the "Rules and Regulations enforced by the Board of Examiners," and "such other information and remarks" as may be deemed useful to the committee of the American Medical Association, of which you are chairman, has been received.

In reply, I beg leave to inform you, that substantially the same information has been officially furnished the Editor of the "New York Journal of Medicine," as well as R. W. Haxall, M. D., chairman of a committee appointed by the "National Medical Convention," which met in the city of New York in 1846. By referring to the May number, sixth volume, and July number, ninth volume, of the "New York Journal of Medicine," &c., you will find the articles referred to.

For your further satisfaction, I enclose the form of the *merit-roll* adopted by the Army Medical Board, which has been in use for some years. With the examples given, it will explain itself.

Since the publication of the numbers of the New York Journal of Medicine, to which you are referred, there has been an increase in the Medical Staff, which now numbers one Surgeon General, 22 Surgeons, and 72 Assistant Surgeons.

Very respectfully, your obedient servant,

H. L. HEISKELL,
Acting Surgeon General.

DR. F. CAMPBELL STEWART,
Chairman of the Committee on Med. Education of American Med. Association.

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From the sources officially indicated in the foregoing letter, we gather the following information:—

Regulations relating to the Medical Board of Examiners.

"1. No person shall be appointed or promoted in the Medical Staff of the Army, until he shall have passed an examination before a proper board, and received therefrom a favourable report.

"2. A board, consisting of three medical officers, will be detailed from time to time, by order of the War Department, who will examine all persons between the ages of 21 and 28, authorized to present themselves. In the execution of this duty, they will rigidly scrutinize the pretensions of each candidate; taking into consideration his physical qualifications and moral habits, as well as his professional acquirements, and will report favourably on no case admitting a reasonable doubt. The health and lives of the officers and soldiers are too important subjects to be committed to ignorant and incompetent hands.

"3. The Board will report the positive merit of the candidates in the several branches on which they may be examined, and their relative merit from the whole examination; agreeably to which they will receive appointment, and take rank in the department.

"4. When a candidate for appointment shall fail to receive a favourable report, he may, if desired, be admitted to a second examination, after the expiration of two years, and, on a second failure, will be dropped from the list of applicants.

"5. No allowance will be made for expenses of persons undergoing these examinations, as they are considered indispensable prerequisites to appointment; but those who are approved and receive appointments, will be entitled to transportation on obeying the first order.

"6. No person shall be appointed a surgeon until he shall have served five years as an assistant surgeon in the army: nor shall any assistant surgeon be permitted to decline promotion, except for reasons growing out of the interests of the service. At the expiration of five years' service, or as soon after as practicable, each one

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shall be examined by a Medical Board for promotion, and in the event of his refusal to appear before the Board, or his failure to receive a favourable report, his connection with the Medical Staff shall cease from that time."

The following are the *Rules of Proceeding* adopted by the Medical Board of Examination.

"Rule I.—The proceedings of the Board shall be confidential.

"II.—Candidates shall be examined at the discretion of the Board in such order that, cæteris paribus, those who come the greatest distance, shall have precedence in the order of examination.

"III.—The order constituting the Board, and the executive regulations defining their duties, shall be read to each candidate previous to examination.

"IV.—Each candidate shall, previous to his examination, be required to make a certificate in regard to his age, health, &c., agreeably to form.

"V.—As introductory to his examination, each candidate shall be required to prepare in writing a *brief* extemporaneous description of the causes, symptoms, pathology, treatment, &c., of such disease as may be assigned by the Board; together with one or more prescriptions proper in the case, written out in form for the apothecary."

Requirements and Remarks.

"Under the regulations, the medical officer is required to investigate the physical agents that may affect the health of the troops, to make reports upon the medical topography of his station, to aid in the selection of military positions, and, as a question of military hygiene, to express his views in respect to the diet, clothing, watering, and exercise of the troops. He is, from the necessity of the case, a *general practitioner* in the most extended sense of the term, and, from location, he is often thrown entirely upon his own resources, and deprived of the advantage of calling to his aid the friendly counsel of professional brethren.

"The most striking causes of failure on the part of the candidates,

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are, *insufficient preparatory education; a hurried course of professional pupilage; want of proficiency in practical anatomy, in pathology, and in clinical medicine.*

"The candidates are examined on the branches usually taught in our medical schools; also on their literary and scientific attainments, embracing a grammatical knowledge of the English language, Latin, and natural philosophy (or physics), which are deemed important branches to those entering on the study of a *liberal* profession. Each candidate is required, as introductory to his examination, to prepare in writing a brief extemporaneous description of the causes, symptoms, pathology, treatment, &c., of such disease as may be assigned by the Board, together with one or more prescriptions proper in the case, written out in form for the apothecary.

"In the several branches enumerated, the candidate is required to be well grounded. The examinations are conducted with the view of ascertaining the measure of his natural endowments, his general professional intelligence, as well as his exact knowledge, his practical ability, and strength of judgment."

The following is the "merit roll" referred to in the letter of Dr. Heiskell, to which we have appended two tables, showing the number of candidates for admission into the medical staff of the army, with the result of the examinations, &c. &c. The first embraces the period from 1841 to 1845 inclusive, and is copied from the *New York Journal of Medicine.* The second contains the returns down to May of the present year, for which we are indebted to Surgeon General Lawson himself, who has politely furnished them as this report is passing through the press.

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Merit Roll of Candidates examined by the Army Medical Board, convened in the City of on the day of

No.	Names.	Nativity.	Residence.	Age.	Physical Qualifications.	Maximum. Minimum	100 80	100 80	100 80	100 80	100 80	100 50	40 20	40 20	40 20	720 510	Positive Merit.	Relative Merit.	Remarks.
							General Aptitude.	Literary and Scientific Qualifications.	Anatomy and Physiology.	Principles and Practice of Surgery.	Principles and Practice of Medicine.	Obstetricy.	Materia Medica.	Chemistry.	Medical Jurisprudence.	Aggregate.			
1	A. B.	Penn.	Penn.	25.4	Good.		47	47	55	43	47	7	5	5	5	261	Rejected.		
2	C. D.	Miss.	Miss.	22.6	Good.		84	82	88	90	89	75	32	24	23	587	Approved.	2	Recapitulation.
3	E. F.	Penn.	Md.	25.8	Robust.		76	65	78	78	78	40	18	12	12	457	Rejected.		1. I. J. Vermont.
4	G. H.	N. J.	N. Y.	25.	Fair.		65	65	47	47	50	25	10	8	5	323	Rejected.		2. C. D. Mississippi.
5	I. J.	Vt.	Vt.	24.7	Good.		86	95	96	93	94	85	36	36	36	657	Approved.	1	
6	K. L.	Ill.	Ill.	27.6	Good.		48	48	49	55	51	16	7	4	4	282	Rejected.		

R. S.
Assistant Surgeon, U. S. A.
Recorder of Board.

T. G. M.
Surgeon, U. S. A.
President of Board.

New York, Feb. 184

Terms used in reference to physical qualifications.

1. Robust.
2. Good.
3. Fair.
4. Delicate. } Not admitted to professional examination.
5. Doubtful. } Not admitted to professional examination.
6. Defective. } Not admitted to professional examination.

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Tables showing the Results of the Examinations by the Army Medical Boards from 1841 *to* 1849, *inclusive.*

I.

Years.	Presented themselves.	Withdrew, a portion being physically disqualified.	Examined.	Approved.	Vacancies happening within the year.
1841	22	8	14	6	5
1842	12	2	10	2	2
1843	14	4	10	4	1
1844	9	2	7	3	1
1845	12	2	10	2	3
Total	69	18	51	17	12

II.

Year.	Invited.	Presented themselves.	Physically or otherwise disqualified.	Withdrew.	Total.	Examined.	Approved.	Resignation.	Deaths.	Increase of staff by law.	Total number of vacancies within the year.
July, 1846	64	43	3	20	23	20	8	4	2	0	6
March, 1847	103	58	5	16	21	37	11	1	5	14	18
October, 1847	85	27	1	4	5	22	6				
May, 1848	54	21	1	6	7	14	4	2	3	0	5
May, 1849	75	52	8	18	26	26	9	2	0	10	12
Total	381	201	18	64	82	119	38	9	10	24	41

II. UNITED STATES NAVY.

Letter from the Chief of the Bureau of Medicine and Surgery of the United States Navy, in regard to Rules, Requirements, &c., for Admission into the Medical Corps of the Navy.

Having referred us, in a previous letter, to the valuable communication made to the Association at its last session, by Surgeons Wood and Pinkney,* delegates from the medical department of the navy, the distinguished Chief of the Bureau furnishes us with the following:—

* Transactions American Medical Association, vol. i. p. 301.

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BUREAU OF MEDICINE AND SURGERY.

April 19*th*, 1849.

DEAR SIR: In reply to your letter of the 10th inst., I subjoin, with pleasure, the information desired.

Naval medical boards, for the examination of candidates for admission to the Medical Corps of the United States Navy, and of assistant surgeons for promotion, are convened by the department, when required by the exigencies of the service. These boards consist of a president and four members, nominated by the Chief of the Bureau of Medicine and Surgery from among the senior surgeons; and are organized under a precept enjoining full, minute, and rigid investigation.

Applications, from persons desirous of examination, must be addressed to the Secretary of the Navy, stating the age and residence of the applicant, and accompanied by respectable testimonials of his possessing the requisite moral and physical qualifications. The request of no one is considered who may be under twenty-one, or over twenty-eight years of age.

Assistant surgeons of five years' standing, who have served, at least, two years on board a public vessel of the United States, at sea, are entitled to a second examination; after which, if approved, they are eligible to promotion.

Each candidate, appearing before the Board, is required to state, in writing, his place of birth and present citizenship—his age, and advantages of general and professional education—the name of his preceptor, and, if a graduate of arts or medicine, that of the institution granting his diploma—the length of time devoted to medical studies, with special reference to Practical Anatomy, or Dissection, the operations of Pharmacy, and the Practice of Medicine and Surgery—to certify, upon honour, whether he be obnoxious to any hereditary complaints, whether any member of his immediate family have suffered from pulmonary disease, epilepsy, insanity, or paralysis —whether his own general health be good, and himself free from constitutional or local affection. He is also obliged to furnish satisfactory evidence that his moral and social habits and character are above reproach.

A brief medical or surgical thesis, upon some subject offered by the Board, is then required to be prepared, without the aid of books or other means of reference, as a test of professional readiness, and literary accuracy.

The subsequent examination upon General and Special Anatomy,

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Physiology, Chemistry, the Practice of Medicine and Surgery, Materia Medica, and Medical Jurisprudence, is directed not only to elicit the abstract views of the candidate upon all these branches, but his practical knowledge and manual dexterity in the various operations of surgery, and his acquaintance with the physical properties and qualities of medicines. For this purpose, he is desired to exhibit his mode of applying the most important surgical apparatus and dressings; to detect, by the senses, drugs and chemicals analogous in appearance, taste, and smell; to describe the processes of pharmacy, and to compound prescriptions in the presence of the Board.

Although the possession of a medical or other diploma is not essential to the success of a candidate, yet the Board attaches importance to every evidence of general information and accomplishment. A union of these conditions, with high professional attainments in the same individual, is certain to secure to him a prominent relative position.

With the exception of the preliminary inquiries above mentioned, the same course is pursued in the examination of assistants for promotion, but with the additional view of ascertaining how far the medical officer has improved his advantages while in service, and acquired that peculiar experience indispensable in the practice of a naval surgeon.

I am, with great respect,

Your obed't servant,

THOS. HARRIS.

F. Campbell Stewart, M. D., *Chairman of the Committee on Medical Education of American Medical Association. New York.*

The following table has been kindly prepared for us by Dr. J. Francis Tuckerman, Assistant to the Chief of the Navy Medical Bureau.

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Abstract of Results of Naval Medical Boards from 1841 to 1849, inclusive.

Year.	Candidates presenting for examination.	Withdrew voluntarily and debarred examination from various causes.	Examined.	Approved.	Vacancies within the year.
1841	45	12	33	12	5
1842	43	11	32	15	2
1843					11
1844	30	2	26	16	8
1845					2
1846					2
1847	65	22	43	13	9
1848	49	10	39	21	5
1849					5
Total	232	57	175	77	*49

III. BRITISH ARMY.

Regulations of the Army Medical Department.

"A candidate for an assistant-surgeoncy in the army is required to fill up a blank form of certificate, specifying by whom he is recommended, his Christian and surname at full length, the course of study he has pursued—viz., the lectures, lecturers' names, places where the lectures were delivered, and the number of months during which he has attended, in accordance with the regulations, together with any others in his possession. If he possess any university degree, he must also state its nature, whether A. M., or A. B., M. D., or a diploma in surgery, and when and at what college or university it was obtained. The number of months attendance at an hospital or infirmary must also be stated, and if he have attended at hospitals for Mental Derangement, and Diseases of the Eye, or a Lying-in Institution, particulars of such attendance must also be furnished. The candidate is, in addition, to sign and forward the following declaration.

"Recommended by ———. I [Christian and surname at full length], —— years of age, a candidate for employment in the medical department of the army, do hereby attest my readiness to engage for general service, whether at home or abroad, and to pro-

* "The column of vacancies gives only those which have actually occurred in the service from deaths, resignations, &c. The difference between this total and that of approved candidates is accounted for by those who, after approval, decline commissions, or are not to be found when wanted.

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ceed on duty immediately on being gazetted. I declare my age not to exceed twenty-six years, that I am unmarried, and that I labour under no mental or constitutional disease, nor physical disability that can interfere with the most efficient discharge of the duties of a medical officer in any climate, [Signature.]

"I have pursued the undermentioned course of study, of which I am ready to produce the vouchers for registry, and also a certificate of my age, namely, ———. I possess certificates of regular attendance at the undermentioned hospitals and courses of lectures for the number of months stated: The ——— Hospital or Infirmary, for ——— months; the ——— Hospital for Mental Derangement, for ——— months; the ——— Hospital for Diseases of the Eye, for ——— months; the ——— Lying-in Hospital, for ——— months.

"*Lectures.*—Anatomy and Physiology, by ——— (stating the number of lectures of each course on separate days); Practical Anatomy, by ——— (stating the number of subjects dissected); Surgery, by ———; Clinical Surgery, by ———; Military Surgery, by ———; Institutes of Medicine, by ———; Practice of Medicine, or General Pathology, by ———; Clinical Lectures on the Practice of Physic, by ———; Midwifery, by ———; Chemistry, by ———; Practical Chemistry, by ———; Botany, by ———; Materia Medica, by ———; Practical Pharmacy, by ———; or an Apprenticeship ———; Forensic Medicine, by ———; Morbid Anatomy and Pathology, by ———; Natural History, by ———; Natural Philosophy, by ———; Moral Philosophy, by ———; Mathematics, by ———; Comparative Anatomy, by ———; stating the number of lectures in each of the above courses. The professors' names, places where delivered, and the periods in months, must be added in every case.

"I have the degree of A. M., or A. B., from the ———. I have the degree of M. D. from the ———. I have a diploma for Surgery from the ——— (the dates of graduations and the universities or colleges to be stated).

"Signature at full length ———. Date ———. Place of residence ———."

"1st. In selecting from among the candidates for the medical department of the army, a preference is given to those who can fill up all the blanks in the preceding pages, by having the acquirements there stated; but the name of no gentleman can be placed on the list, who does not possess the diploma of either of the Colleges of

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Surgeons of London, Edinburgh, or Dublin, and who cannot produce the following testimonials:—

"Eighteen months' attendance at an hospital of celebrity, where the average number of in-patients is not less than 100; 24 months Anatomy; twelve months Practical Anatomy; twelve months Surgery; or (what is preferred) six months Surgery, and six months Military Surgery; eight months Clinical Surgery, a complete course of two or three lectures during the week; twelve months Practice of Physic, or six months Practice of Physic and six of General Pathology; eight months Clinical Lectures on ditto, the same as required in Surgery; twelve months Chemistry; six months Practical Chemistry; three months Botany; four months Materia Medica; three months Practical Pharmacy, or Apprenticeship; five months Natural History; five months Midwifery; five months Natural Philosophy.

"2d. The candidates must be unmarried, not beyond 26 years of age, nor under 21.

"3d. Candidates who have had a university education, and have the degree of A. B., or A. M., as well as that of M. D., will be preferred; but a liberal education, and a competent knowledge of the Greek and Latin languages, are indispensably requisite in every candidate.

"4th. The greater the attainments of the candidates in various branches of science, in addition to competent professional knowledge, the more eligible will they subsequently be deemed for promotion in the service; for selections to fill vacancies will be guided more by reference to such acquirements than to mere seniority.

"5th. Although the British schools are specified, it is to be understood that candidates who have received regular education in approved foreign universities or schools will be admitted to examination.

"6th. With the exception of Practice of Physic and Clinical Medicine by one teacher, candidates must have attended separate lectures for each branch of science.

"7th. Before promotion from the rank of assistant-surgeon to any higher rank, every gentleman must be prepared for such other examination as may be ordered before a Board of Medical Officers.

"8th. Diplomas, tickets of attendance on lectures, and certificates of regular attendance by each professor or lecturer, must be lodged at this office for examination and registry, at least one week before the candidate appears for examination, and likewise certificates of

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moral conduct and character, one of them by a clergyman, and that of the parochial minister is desirable. Baptismal certificates are required at the same time. If the parish register cannot be resorted to, an affidavit from one of the parents, or some person who can attest the fact, will be accepted.

"9th. The certificate of the teacher of Practical Anatomy must state the number of subjects or parts dissected by the pupil.

"10th. Certificates of lectures and attendance must be from physicians or surgeons of the recognized Colleges of Physicians and Surgeons in the United Kingdom, or of foreign universities."

IV. BRITISH NAVY.

Naval Medical Department.

"*Qualifications.*—The Right Honourable the Lords Commissioners of the Admiralty, having been pleased to direct 'that no person be admitted as an assistant-surgeon in the Royal Navy, who shall not produce a certificate from one of the Royal Colleges of Surgeons of England, Edinburgh, or Dublin, of his fitness for that office; nor as a surgeon, unless he shall produce a diploma or certificate from one of the said Royal Colleges, founded on an examination to be passed subsequently to his appointment of assistant-surgeon, as to the candidate's fitness for the situation of surgeon in the navy; and that in every case, the candidate producing such certificate or diploma, shall also undergo a further examination before the Director-General of the Medical Department of the Navy, touching his qualifications in all the necessary branches and points of Medicine and Surgery, for each of the steps in the naval medical service:' The Director-General doth hereby signify, for the information of those persons to whom it may relate, that these regulations and directions will be strictly adhered to; and further, that previously to the admission of assistant-surgeons into the navy, it will be required that they produce proof of having received a preliminary classical education, and that they possess, in particular, a competent knowledge of Latin; also, that they are of good moral character, the certificate of which must be signed by the clergyman of the parish, or by a magistrate of the district.

"That they have served an apprenticeship, or have been engaged for not less than six months in Practical Pharmacy. That their age be not less than 20 years, nor more than 24, and that they

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are unmarried. That they have actually attended a hospital in London, Edinburgh, Dublin, Glasgow, or Aberdeen for two years, subsequently to the age of 18, in which the average number of patients is not less than 150. That they have been engaged in actual dissections of the human body twelve months; the certificate of which, from the teacher, must state the number of subjects or parts dissected by the candidate. That they have attended lectures, &c., on the following subjects, at established schools of eminence, by physicians or surgeons of the recognized Colleges of Physicians and Surgeons in the United Kingdom, for periods not less than hereunder stated; observing, however, that such lectures will not be admitted if the teacher shall lecture on more than one branch of science, or if the lectures on Anatomy, Surgery, and Medicine, be not attended during three distinct winter sessions of six months each.

"Anatomy eighteen months; or General Anatomy twelve months, and Comparative Anatomy six months. Surgery eighteen months; or General Surgery twelve months, and Military Surgery six months. Theory of Medicine six months. Practice of ditto twelve months. If the lectures on the Theory and Practice of Medicine are given in conjunction, then the period required is eighteen months. Six months' lectures on Pathology, if given at a university where there may be a professorship on that branch of science, will be admitted in lieu of six months' lectures on the Practice of Medicine.

"Clinical lectures, at a hospital as above, on the Practice of Medicine six months, and the Practice of Surgery six months. Chemistry six months, or lectures on Chemistry three months, and Practical Chemistry three months. Materia Medica six months. Midwifery six months, accompanied by certificates stating the number of midwifery cases personally attended. Botany six months, or General Botany three months, and Medical Botany three months.

"In addition to the tickets for the lectures, certificates must be produced from the professors, &c., by whom the lectures were given, stating the periods in months actually attended by the candidates. The time also of actual attendance at a hospital or infirmary must be certified, and the tickets as well as certificates of attendance, age, moral character, &c., must be produced by the candidate immediately on his being desired to appear for examination.

"Although the above are the only qualifications which are absolutely required in candidates for the appointment of assistant-surgeon, a favourable consideration will be given to the cases of those who have obtained the degree of M. D. at either of the Universities of Ox-

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ford, Cambridge, Edinburgh, Dublin, Glasgow, or London, or who, by possessing a knowledge of diseases of the eye, and of any branch of science connected with the profession, such as Medical Jurisprudence, Natural History, Natural Philosophy, &c., appear to be more peculiarly eligible for admission into the service; observing, however, that lectures on these or any other subjects cannot be admitted as compensating for any deficiency in those required by the regulations.

"By the rules of the service, no assistant-surgeon can be promoted to the rank of surgeon, until he shall have served three years in the former capacity, one year of which must be in a ship actually employed at sea; and it is resolved, that not any diploma or certificate of examination from either of the aforesaid Royal Colleges shall be admitted toward the qualification for a surgeon, unless the diploma or certificate shall be obtained on an examination passed after a period of not less than three years' actual service; observing that no one can be admitted to an examination for surgeon, unless he be a member of one of the above-named Royal Colleges, and produce the most satisfactory certificates that he has performed on the dead body, under the superintendence of a professor or teacher of known eminence, all the capital operations of surgery, and is perfectly competent to perform any operation with skill and dexterity, and thoroughly acquainted with the anatomy of the parts involved in such operations; without which qualification, no one hereafter can be promoted to the higher branches of the service; and, whenever assistant-surgeons, already in the service (whose professional education may not be in accordance with the above), obtain leave to study previously to their passing for surgeons, they will be required, on their examination, to produce testimonials of their having availed themselves of the period of leave to complete their education, agreeably to these regulations generally.

"Candidates, who may be admitted into the naval medical service, must serve in whatever ships, &c., they may be appointed to; and in the event of their being unable to do so from sea-sickness, their names cannot be continued on the naval medical list, nor can they, of course, be allowed half-pay."

Corrected to October, 1848.

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SECTION III.

The Legal Requirements exacted of Medical Practitioners in the several States of the Union (and in other Countries).

From the answers received to the twelfth query of our circular, and from information obtained through other sources, we are enabled to present to you the subjoined abstract of the legal requirements of the several States of the United States. We introduce, likewise, a brief and condensed statement of the laws in force in some other countries in regard to the practice of medicine.

I. UNITED STATES.

1. MAINE.—Formerly, none but regularly licensed physicians could collect their dues; several years since, however, the law was repealed, and the field is now open to all.

2. NEW HAMPSHIRE.—The State laws of New Hampshire do not require any license. There are no laws on the subject of medicine.

3. VERMONT.—The State laws require no license. A law was passed in 1821, requiring the M.D. or A.B. degree, but it was repealed in 1838.

4. MASSACHUSETTS.—No laws in force at the present time. In 1818–19, an act was passed "to regulate the Practice of Physic and Surgery," but when the statutes of the State were revised, this act was omitted "in accordance with the wishes of the greater part of the State Medical Society."

5. RHODE ISLAND.—"The legislature has done nothing for the suppression of quackery." There are no laws on the subject.

6. CONNECTICUT.—The legislature, several years since, repealed the law, requiring a license for the legal collection of fees—thus virtually licensing all practitioners. The State Medical Society admits to membership only such as have the diploma of M.D., or the legal license.

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7. New York.—No restrictions since 1844, when the law was repealed. All persons, now, have the right to practice and recover compensation for services.

8. New Jersey.—Laws have been in force since the incorporation of the State Medical Society in 1816, and the Society still retains the power of licensing, under a revised law of 1830—sections 12 and 14 of which, read thus: "*And be it enacted*, that no person shall commence the practice of physic or surgery within this State, until he shall have passed an examination and received a diploma from the Medical Society of New Jersey, established as aforesaid; and if any person shall practice as a physician or surgeon, without having first obtained a license for that purpose (who was not a respectable practitioner without a license, previous to the passage of the act of 1816), he shall forfeit and pay, for every prescription, the sum of twenty-five dollars, to be recovered with costs of suit," &c. &c. (in the usual manner); "and it is hereby made the duty of the district society, in any county where such penalty shall be incurred, to prosecute the same. *And further*, if any person shall so practice contrary to the provisions of this act, he shall for ever thereafter be disqualified from collecting any debt or debts incurred by such practice in any court in this State."

"*And be it enacted*, That this act shall be so construed as to prevent all irregular-bred pretenders to the healing art, under the names or titles of Practical Botanist, Root or Indian Doctor, or any other name or title, involving quackery of any species, from practicing their deceptions, and imposing upon the ignorance and credulity of their fellow-citizens; and if any person shall attempt so to practice, in any of the counties of this State, he shall be considered an illegal practitioner, and subject to all the penalties contained in the twelfth section of this act; and it is hereby made the duty of the overseers of the poor of any township, where such offenders may reside, as well as the duty of the district societies, to prosecute to conviction all such offences against the laws and well being of the people of this State."

The by-laws of the Medical Society of New Jersey, require that the candidate for a license to practice, shall be "of sound mind, moral and temperate habits, and twenty-one years of age." He shall satisfy the censors to whom he applies for examination, and it is made their duty to require full and satisfactory evidence, by certificate, "that he has studied with a regularly licensed physician or

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surgeon for four years, and attended at least one full course of medical lectures in some respectable college or university. But if he has obtained an academical diploma, then three years' study, including a course of lectures shall be sufficient."

"The censors"—they are four in number—"being satisfied with the testimonials required, shall proceed to examine the applicant or applicants, carefully and impartially, on the subjects of Materia Medica, Pharmacy, Chemistry, Anatomy, Surgery, the Practice of Physic, and Midwifery." A vote is then taken by ballot; and if three out of the four censors are satisfied, the candidate receives a certificate which must bear the signatures of the examiners. This is presented to the president of the society, who thereupon issues a diploma or license. All persons who have not pursued their studies in the State, and desire to practice there, must submit to the examinations, and pursue the course just described.

9. Pennsylvania.—There have never been any laws regulating the practice of medicine and surgery; any one may engage in practice, and recover his fees.

10. Delaware.—Dr. Couper, in his report of the number of medical practitioners in this State, rendered to the Association at its last meeting* says: "Under the general law regulating the practice of medicine and surgery in the State of Delaware, every practitioner is required to take out the license of the State. The graduates of any respectable medical school, and such other persons as shall sustain a satisfactory examination before the Medical Board of Examiners, are entitled to this license on the payment of a fee of ten dollars. But under special acts of the legislature, passed since the date of the general law, Homœopathists and Thompsonians are permitted to practice without diplomas, and without the payment of a fee."

11. Maryland.—No laws now in force. From 1798 up to 1838, the Medical and Chirurgical Faculty of the State was authorized to elect a Board of Examiners for the State, whose duty it was to grant licenses to those whom they found competent. The penalty for practicing without this license was fifty dollars for each offence.

* Transactions Am. Med. Association, vol. i. p. 363.

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The law was rendered nugatory by the passage, in 1838, of the following act:—

"Be it enacted by the State of Maryland, that, from and after the passage of this act, it may and shall be lawful for each and every person, being a citizen of this State, to charge and receive compensation for their services and medicines, in the same manner as physicians are now permitted to do."

A highly intelligent physician of the State, in writing to the committee of the Monroe Co. (N. Y.) Medical Society, makes use of the following language:—

"During the whole time that we had a medical law, the community were protected from open quackery, and many valuable lives were saved in consequence; but since the repeal, quackery has been carried on in all its forms, and many of our citizens have been humbugged to death by their mal-practice. I think the law protecting the community ought not to have been repealed."

12. District of Columbia.—The general government has protected the District of Columbia from the impositions of quackery. "A medical society, incorporated by act of Congress, confers a license on such as have graduated at a medical school, or on such as may, without graduation, sustain a good examination before the 'examiners' of the society. No one can recover fees by process of law unless a licentiate of this society."

13. Virginia.—There is no law in this State regulating the practice of physic and surgery—consequently none prohibiting quackery; nor has any law ever been enacted, imposing penalties or disabilities upon the quack.

"No license for practicing medicine and surgery is required by the laws of Virginia. Practitioners are annually taxed five dollars each, whether holding a diploma or not."

14. North Carolina.—There is no law in the State of North Carolina regarding the practice of medicine, and none has ever been enacted. Any one can practice and recover compensation, on proof that services were rendered.

15. South Carolina.—An act was passed by this State in 1817, to regulate the licensing of physicians to practice, &c. It imposed a penalty of two months' imprisonment, and a fine of five hundred

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dollars upon all who practiced without due authority obtained in the manner prescribed by law. In 1838, "these penalties and disabilities were annulled." The diploma of the medical college of the State has always been a legal license.

16. Georgia.—A law was passed in 1826, which imposed a penalty of five hundred dollars for practicing without a license from the "Board of Physicians" of the State. Another act was passed in 1839, to reorganize the Board of Physicians, which still retains the power to examine applicants and grant licenses; but a proviso, of a most absurd character, is attached to the law, which completely nullifies it. It is as follows: "Provided nothing in the said revised act be so construed as to operate against the Thompsonian, or Botanic practice, or any other practitioner of medicine in this State."

17. Alabama.—There was formerly a regularly appointed Board of Medical Censors for the State, and a law which imposed penalties of imprisonment for six months, and five hundred dollars fine, for practicing without its license. "The Board, however, has been abolished, which operates as a repeal of all law on the subject." "Its repeal has had the effect to overrun the State with quacks of every description, of every name and country. It has destroyed confidence in the profession generally; broken down all medical etiquette, and prostrated the science of medicine and surgery to a mere trade. Certainly, there are many exceptions to the sweeping remarks made above, but generally they are true."

18. Mississippi.—There are no laws at present in force in this State in regard to the practice of medicine and surgery; all restrictions were removed in the year 1834. We offer no apology for introducing the following pertinent extract from a letter to the Committee of the Monroe Co. Med. Soc. "The State of Mississippi, from its admission into the Union, down to the year 1834, had probably a more efficient code of laws to restrain quackery than any other State in our confederacy. They answered the purpose for which they were intended most effectually. Before any person could practice medicine or surgery in the State, he had to appear before a Board of Medical Censors, established by the legislature, and produce evidence, satisfactory to the Board, of his medical and surgical attainments (whether a graduate or not), and also of good moral character. This being done, he obtained a permanent license. This had forthwith

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to be taken to the clerk's office of the county in which the physician receiving it intended to locate, to be there recorded. The clerk of the court was compelled to furnish the grand jury of the county with a list of all the licensed physicians, every time the jury assembled. It was also the duty of the judge of the circuit court, to charge the grand jury to indict every person who presumed to practice medicine, whose name was not recorded among the licensed physicians of the county. The fine for each offence was something, together with costs, but could not exceed five hundred dollars. These laws, for a number of years, until they were annulled by a change of the constitution, effectually put down all kinds of quackery throughout the State. When the constitution was amended, the Board of Censors was abolished. Ever since 1834, the State has been overrun with quacks of all kinds, and the mortality has greatly increased."

19. Louisiana.—"No State in the Union is better protected against impositions of all kinds, in medicine, than this. By an act of the legislature, passed in 1820, no person is allowed to practice medicine, or the profession of an apothecary, without submitting to an examination before a Board consisting of five physicians and one apothecary, appointed by the State. The law provides, that a respectable diploma of Doctor of Medicine shall entitle an applicant to a certificate of permission to practice; but medical diplomas having become of late as plenty as pocket-knives, the Board have *assumed* to themselves the right of examining all applicants without any respect to any certificates or diplomas whatever." (*Letter from Louisiana*, 1843.)

20. Texas.—It is believed that no laws have been enacted in the State of Texas, in reference to the practice of medicine and surgery. If any existed prior to the admission of the State into the Union, we are informed that they were never enforced.

21. Tennessee.—No laws on the subject.

22. Kentucky.—No laws on the subject. The diploma of M.D. is recognized as a license.

23. Illinois.—No license is required or recognized in Illinois. The laws have as yet made no provisions regarding medical practice.

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24. INDIANA.—There are no laws in this State in relation to the practice of medicine at the present time. Formerly, all practitioners were compelled to obtain a license from a Board of Censors. The law was repealed some twenty years since.

25. OHIO.—This State has no laws at present regulating the practice of medicine; there are no legal restrictions, and no license is required. By an act of 1824, no one could practice without a license from the State Medical Society, but this act was repealed in 1833.

26. MICHIGAN.—The statute requires that every physician shall obtain a license, either from the State or a county society. A diploma is not considered equivalent to a license.

27. MISSOURI.—There are no laws on the subject in this State, and no license is required; a diploma even is unnecessary.

28, 29, 30. WISCONSIN, IOWA, and ARKANSAS.—We have no positive information in regard to the laws of these States, but learn from a reliable source that, if any measures have been taken to regulate the practice of medicine, no attention whatever is paid to them, and the field is open to all who choose to enter it.*

II. GREAT BRITAIN.

The M.D. degrees of Universities, and licenses from Royal Colleges, entitle the holders of them to practice medicine and surgery anywhere in the kingdom except in the city of London, and within seven miles thereof. To obtain this privilege, the conferring of which is a chartered right belonging to the "Royal College of Physicians of London," it is necessary to undergo an examination before the President and Censors, on Latin and Greek; and, likewise, three medical examinations, which are conducted in the Latin language.

III. FRANCE.

The laws in regard to the practice of medicine in France, have undergone but few modifications of late years; those enacted during

* For more minute particulars in regard to the old laws, &c., of some of the States, see "Report of Committee of Monroe County (N. Y.) Medical Society," 1843.

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the Empire, were found to be sufficient to protect the public from the impositions of ignorance, and the profession from the unjust rivalry of illiterate pretenders. Notwithstanding the great political changes which have repeatedly taken place, and the consequent interruptions and alterations in the existing order of things, it has been deemed unwise to interfere with laws which were found to work well, and which were intended solely for the benefit of humanity, and the protection of the lives and health of the people.

We gather the following most important features of the French laws in regard to this subject, from the *Almanach Générale de Médecine*, for the year 1849:—

1. No person is permitted to engage in practice but those who are regularly licensed in the manner prescribed by law (graduates of one of the three schools of medicine, *officiers de santé*, midwives, or foreigners, holding a special license from the government.)

2. All physicians and *officiers de santé* are required, within one month after selecting their domicile, to present their diplòma or license to the clerk of the court, and at the office of the sub-prefect of the department in which they purpose practicing.

3. Regular graduates of the medical schools, holding the diploma of M. D., may practice anywhere in France; but *officiers de santé* can only practice in the department in which they have been examined and licensed, nor can the latter, under heavy penalties, perform any important surgical operation, unless with the approbation and under the personal direction of a regular M. D.

4. Midwives are not permitted to use instruments in difficult cases of labour, without calling in an M. D.

5. All unauthorized persons engaging in the practice of medicine, surgery, or midwifery, are punished in the following manner:—

For practicing *as a physician*, a fine not exceeding one thousand francs.

For practicing *as an officier de santé*, a fine not exceeding five hundred francs.

For practicing *as a midwife*, a fine not greater than one hundred francs.

In addition to the fines, offending parties can also be imprisoned, for a period not longer than six months. It is made the duty of the legal officers of the government to prosecute in all cases, and the fines imposed go to the benefit of the public hospitals.

6. Physicians are privileged creditors, their claims being made payable immediately after the settlement of court charges, and funeral expenses.

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7. Heavy penalties are imposed upon physicians and all others who assist in procuring an abortion—including the female herself.

8. Medical men receive, in all instances, compensation for attendance as witnesses, and for making post-mortem examinations, or services rendered in medico-legal cases.

9. None but regularly educated and competent persons are allowed to establish themselves as apothecaries, and there are proper penalties for selling poisonous substances, which cannot be dispensed without an order from a physician.

10. Judicious regulations are in force in regard to the sale of secret remedies and patent medicines.

IV. GERMANY.

The laws in force in Germany, in regard to the practice of medicine and surgery, are exceedingly strict, and nowhere, except in Austria, does the diploma convey the right to practice; and there, even, the privilege is accorded only to the holders of degrees from the Universities of Vienna, Pavia, and Padua;* all others, *even though they be graduates of other German universities, and also licentiates*, are required by the laws of this despotic State, to study for four years *in Austria* before they can be admitted to an examination for a license!

The following are the requirements exacted in *Prussia*, and most of the other German States, of candidates for a license to engage in practice:—

They are compelled to exhibit a regular series of diplomas and certificates, showing the course of academic study that they have pursued, their morality, proficiency in the several departments of general science, &c., and the diploma of M. D. All of these being in order, and satisfactory to the authorities, they are submitted to the following examinations, which are conducted by sixteen physicians appointed by the government, and called "State Examiners."

Examinations.—The examinations are five in number, and a period of about two weeks' time is devoted to each one. They are denominated respectively, the Anatomical, Akiurgical, Surgical, Medical,

* The reason why the diplomas from the Austrian universities, &c., are recognized as equivalent to licenses, is because the examination for the degree is conducted by a number of duly selected general practitioners, equal to the number of the Faculty of the University, and who vote with the Faculty upon the reception or rejection of the candidate.

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and General, or Recapitulatory, and are conducted in the following manner :—

1st. *The Anatomical.*—In this examination, the candidate is directed to draw from an urn one of four tickets which are respectively labelled "Cavity of the Chest," "Cavity of the Abdomen," "Brain," "Genito-Urinary Organs." Whichever subject has fallen to his lot, he is required to dissect and demonstrate fully and in all its details before the examiners. He then draws, in the same manner, the name of one of the bones, and of some viscus, which he is expected to describe minutely. Physiological questions are likewise asked during this examination.

2d. *The Akiurgical.*—The first step of this examination is to prepare an historical, descriptive, and critical thesis or memoir on the subject of some one of the operations of surgery, which is to be publicly defended, and the operation treated of performed on the subject. An extemporary lecture on some operation, to be indicated by the examiners, is then to be delivered, and the operation performed without preparation. Should it be a luxation or fracture, all the requisite manipulations are to be gone through. In addition to this, two or three other indicated operations must be extemporaneously performed on the subject.

3d. *The Surgical.*—The surgical examination consists in the investigation of two surgical cases taken at random, in a hospital. The patients are to be questioned and examined in the presence of all the examiners; after which, the candidate is shut up alone, in a private room, and without books or assistance, must write out their history, diagnosis, and proper treatment. He has subsequently to visit these patients at least six times, in company with two of the examiners, who question and cross-question him on their cases, and require him to perform all manipulations that may be necessary, or to operate, if an operation is called for; he must, likewise, keep a journal of each case.

4th. *The Medical.*—This examination is conducted in the same manner as the last, except that the patients selected labour under medical instead of surgical complaints. The candidate has, however, in addition, to give the maximum and minimum doses of twenty

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medicines; to select medicinal agents by their physical properties; and to write out in full five formulæ for the apothecary.

5th. *The final* examination is recapitulatory of all the others, and any question asked relating to the science must be extemporarily answered.

If all the examinations are satisfactory, the applicant is licensed by the Minister of Public Instruction to practice his profession in all its branches; but unless the second and third are marked in the examiners' returns as having been "excellent," he is specially prohibited from using the knife, or performing surgical operations.

The number of candidates for license to practice in Prussia is about from two hundred and twenty to two hundred and fifty annually; and of these, nearly twenty per cent. are rejected.

Foreign physicians and graduates, or licentiates from other States, are required to undergo the same examinations before they are allowed to engage in practice.

V. SWITZERLAND.

The laws of Switzerland, in regard to the practice of medicine and surgery, require that the applicant, whether a graduate or licentiate, shall obtain a permit from the government, which exacts a rigorous practical examination. Foreigners, possessors of degrees from institutions in their own country, cannot engage in practice in Switzerland, until their diplomas have been countersigned by their official representative, and they have been subjected to an examination.

The population of Switzerland is about 2,150,000, and the whole number of *graduated* physicians, at the period of the last census, was four hundred and fifty.

VI. ITALY AND RUSSIA.

In *Italy*, a license from the government is always a pre-requisite to engaging in the active practice of medicine and surgery.

In *Russia*, the heaviest penalties are inflicted upon all who engage in practice without authority to do so, obtained either through the royal academies, or from the emperor directly.

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SECTION IV.

Such Measures, prospective or established, in reference to Medical Education, and the reputable standing of the Profession, as are deemed worthy of special consideration.

We are happy to have it in our power to inform you that the organization of this Association has already produced the happiest results to the profession, and many of its recommendations have been wholly, or partially adopted. Besides the alteration of rules which it has been shown in the first part of this report some of the most influential of the colleges have made, in accordance with your suggestions, State medical societies have been organized in Pennsylvania, Virginia, Georgia, and Alabama; and local voluntary associations are being rapidly established in almost every section of the country. Your good intentions seem to be generally acknowledged and appreciated; and so long as a mild and conciliatory course shall be pursued, we do not doubt that your opinions and advice will be everywhere regarded with the great respect to which they are undoubtedly entitled. The fact of your possessing no legal means to enforce your decisions, and the circumstance of your constitution providing for the free admission of large representations from all respectable medical associations, gives a greater degree of interest to your proceedings, and more weight to your counsels than though you were invested with unqualified power for the enforcement of your decisions. Although, however, much has been already accomplished, there still remains much more to be done, and we request your favourable attention to the subjects that we are now about to examine.

The first to which we shall call your attention, is one which has been already considered at length by a former committee, but which is so important that we should be wanting in our duty did we not again bring it before you. This we do with the view of indicating what we believe to be a practicable method for carrying out former recommendations. The subject is that of preliminary education.

By a reference to the first section of this report, it will be seen that elementary knowledge is considered everywhere, but in the United States, to be so essential to enable young men to prosecute their professional education to advantage, that without evidence

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of their possessing it, they are not allowed even to matriculate as medical students. It is believed that the same value is in reality attached to it in this country as elsewhere, but owing to the rivalry of colleges, and the facilities granted for obtaining diplomas, together with the want of a feasible plan for the accomplishment of the desired end, it has come to be entirely disregarded.

We will not detain you for a moment, then, to recapitulate the arguments in favour of reform in this particular. Our desire, as has been already stated, is only to suggest to you an easy method for accomplishing the object. The following proposition, which originated with a committee of the Medical Society of the State of New York, and which was adopted by that body at its last annual meeting, and recommended to the several county societies, and voluntary associations of the State, strikes at the root of the evil, and appears to us to be sufficient *at the present time* to insure at least a moderate preparatory education. It consists in the establishment, by State and local societies, of "Primary Boards of Examiners," whose certificates shall always be required prior to the reception of students into the offices of practitioners or teachers. It is thus explained:—

Primary Board.—"To be admitted to the offices of any of the members of this society, it shall be required that the applicant shall, in addition to a good English academic education, have made respectable attainments in the Latin and Greek languages; and that he shall sustain a good moral character. In evidence of which the applicant shall present his medical preceptor the certificate provided for in the —— section of these by-laws.

"A Board of Examiners, consisting of three, to be called the 'Primary Board,' shall be chosen annually by ballot, whose duty it shall be, whenever notified in writing, by any member, to meet and examine the applicant.

"If the examination is satisfactory, the applicant shall be furnished with a certificate of the fact, in the form following:—

"We certify that we have examined A—— B——, of C——, and that he has a good English academic education. We certify also, that he has produced before us a certificate (or 'certificates,' or 'affidavit,' as the case may be), that he has diligently studied the Latin and Greek languages during six months," (or, "that he is a graduate of a literary college.")

(An affidavit made before a proper officer may be received, when,

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for reasons which may seem satisfactory to the Board, a certificate cannot be obtained.)

(The Board, or either of its members, may also examine the applicant personally upon his acquirements in the Latin and Greek languages, if deemed necessary. But in no case shall such examination be received as a substitute for the certificate or affidavit.)

"We further certify that he has produced before us a certificate of good moral character."

Dated. (Signed by at least two members of the Board.)

"The Board shall, at each annual meeting, furnish to the Society the names of those to whom they have given certificates since the last annual meeting, accompanied with the date of the certificates, and the Secretary of the Society shall make a faithful record of the same."

We shall propose to you resolutions recommending the adoption of this suggestion.

We regret to find that the subject of *hospital* clinical instruction, which was so strenuously insisted upon by our predecessors, has not received that attention from the medical colleges which its great importance demands. There are, comparatively speaking, but very few institutions in the country whose rules require attendance upon bedside practice prior to graduation. Even in the large cities and towns, where every facility is afforded for this species of practical instruction, which is universally admitted to be more important than any other—anatomy alone excepted—it is not properly insisted upon, and only one or two institutions make it obligatory upon their pupils to attend to it; and, even in these cases, no measures are taken, by roll-call, or otherwise, for ascertaining if the student does in reality attend. His possessing the *ticket* is all that is required.

It is a well-known fact that but very few pupils, comparatively speaking, do avail themselves of the advantages to be derived from hospital instruction; and the number in actual attendance at the hours of visit, is surprisingly small.

We are credibly informed, that, even in New York and Philadelphia, not more than one in ten attend regularly at the hospitals; whereas, in Great Britain, France, and Germany, but few are found willing to absent themselves, even for a day, from the clinical lectures, or omit their prescribed attendance in the wards. In Ireland, the proportion of more than half (three hundred out of five hundred

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and fifty) are regular followers of the medical officers of the public institutions; and in France and Germany, the proportion of those who neglect this duty is not greater than from five to ten per cent.

Why is it that this lamentable indifference to the most interesting, as well as to the most useful feature of medical instruction, exists with us? We think that it may be attributed to two causes. The first, is the circumstance of its not being generally insisted upon, and made obligatory; and the second, because so many subjects are taught in a very limited period of time, and so many lectures to be attended to, and prepared for, that the young men have, in reality, no time to devote to additional duties.

An attempt has been made within the last few years to afford a substitute for hospital attendance, by introducing what are called "College Clinics," and thus enabling professors to exhibit and explain to their students such cases of disease as may be presented for out-door treatment. That this system is better than no clinical instruction at all, we freely admit; but that it should ever be permitted to take the place of hospital attendance, when the latter can be procured, we contend to be wholly wrong. It is impossible for students to derive that advantage which is expected to result from witnessing the consecutive treatment of cases, by seeing persons affected with disease once or twice only, without being able to watch the effects of the medicinal agents employed, and the final result. There is another objection, likewise, to this imperfect system of clinical teaching which is worthy of consideration, as it affects the whole profession, and particularly those members of it whose practice is confined principally to the middle and lower classes of society, and whose business lies chiefly with that class of the community which is unable to pay a full compensation for medical services, and yet can easily afford some remuneration to their medical attendants. It is known to your committee that numerous individuals so situated, and well to do in the world, are in the habit of resorting to the cliniques of the schools to obtain, gratuitously, advice for which they are fully able to pay. Thus a direct and positive injury is inflicted upon a large and deserving class of our brethren, whose means of livelihood and pecuniary receipts are proportionally curtailed.

We concur unanimously in the opinion that they present no adequate equivalent to the student, when resorted to as a substitute for actual hospital attendance, while, at the same time, they are a direct source of injury to many deserving members of the profession.

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We conceive that the method of *conducting the examination* of candidates for medical degrees, in some of the principal colleges in the United States, is exceedingly defective, and calls for remonstrance on the part of the profession at large. In some institutions they are strictly private, and each professor examines the candidate alone, and apart from his colleagues. These examinations are also *vivâ voce*, and but a very short time is allowed for questioning the young men. Three out of seven, or two out of six, negative votes are generally considered necessary for rejection. Thus a candidate may be wholly unprepared, on one or two of the most important branches—anatomy and surgery for instance—and yet receive his degree! This is a condition of things that should never be countenanced or tolerated; and we shall propose to you recommendatory resolutions, in addition to those which have already been passed, and which we hope will meet with your approval.

All examinations, if not public, should be conducted in the presence of at least a majority of the professors, and they should be in writing as well as *vivâ voce*. The excuse offered in palliation of this great and fundamental error, is, that the number of candidates is, in some cases, too large for teachers to afford the time necessary for conducting them in a proper manner, and before the whole, or a majority of the Faculty. This we cannot admit as valid. Where the remuneration of the teachers is proportionally increased with the number of students attending the institution with which they are connected, it is no more than reasonable and just that a proportionate space of time should be devoted to their examination. Professors are paid for it—in some instances at a very high rate—and it should be held as incumbent upon them to discharge their duty in an efficient manner.

We think that much might be gained by a *division of the subjects taught* into two classes; one series of which might be studied during the first course of lectures, and another during the second year's attendance. Thus anatomy and dissecting, together with chemistry, materia medica, and pharmacy and physiology, might be studied during the first session, at the close of which examinations should be held and certificates of acquirement given. During the second session, the subjects of surgery, practice of medicine, midwifery, and hospital attendance, with a continuation of the study of anatomy, might be insisted upon. This, we think, would be a decided improvement upon the present plan, which requires attendance on all

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the branches during both sessions, and does not permit the student time to prepare himself thoroughly on any one of them. At his final examination, at the close of the second session, his certificates obtained at the end of the first course being exhibited, he would only have to be questioned on those subjects which were last studied, and defend his thesis. We urge your close attention to this proposition, which we hold to be important, and which we think would be found to work well. It will be presently submitted in a concise form for your consideration.

Practical Pharmacy is a subject of the greatest importance, particularly where many of our physicians practicing in the country are compelled to become their own apothecaries. We believe that, as a general rule, it is taught in country offices, where the preceptor requires the aid of his pupils in preparing and putting up medicines. It might likewise be easily studied in the cities, during the first year's reading, and prior to the commencement of attendance upon lectures, or else in the interval between the sessions.

The course pursued at Edinburgh in this respect is worthy of imitation; and we think it advisable that, prior to receiving his diploma, every candidate should be required to produce evidence of his having been engaged, during a period of at least three months, in compounding medicines, either in his preceptor's office, or in the shops of recognized apothecaries, members of a college of pharmacy.

It affords us pleasure to inform you that the recommendations of the Philadelphia Convention, in regard to the *lengthening of the lecture term*, have been responded to by several of the most important and flourishing among the colleges; many of which have not only added to the length of the regular course, but give in addition a preliminary and gratuitous series of lectures.

The advantages arising from this improvement in our system are evident, and we are most happy to find that the apprehensions of those who feared that students would not consent to an increased tax upon their time, have not been fulfilled. The classes recently in attendance at those colleges which have extended the term, bear the same proportion to those of the colleges that have made no change as they formerly did, and in some instances they have been larger than ever. While we record the fact of the partial success of this innovation, and announce to you our belief that it meets with the approval of a large majority of the profession throughout the

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country, we regret to learn that, at one or two institutions, the enlightened Faculties of which were among the first to adopt the recommendation, a return to the old period of four months has been decided upon. This circumstance we regret the more, because we conceive that the period of one session was scarcely sufficient to test the matter fully, and because it may occasion hesitation and delay in other bodies that were about to make the change.

The attendance by students upon a term of six months is a reasonable exaction; it is only two-thirds of the time required *everywhere else than in this country;* and experience has shown that it is impossible for professors to impart the instruction that they are required to give, in a shorter period, without crowding and condensing to an extent which precludes the possibility of satisfactory and comprehensive illustration. We feel convinced that it must ultimately prevail, and all that is wanting to insure its immediate and general adoption, is concert of action on the part of the colleges. We are satisfied that objections will not be raised by the student, when he is made fairly to understand that the change is principally for his advantage and convenience.

The importance of imposing additional restrictions upon students and practitioners, and of elevating, as far as practicable, the standard of education, should be admitted by all who are at all familiar with the subject.

It has been shown that, during the last five years, there have been graduated, annually, as many as from one thousand to fourteen hundred, by the colleges whose returns have been given, alone; and it is computed that as many as sixteen hundred diplomas are granted every year by the medical schools of the country. The number of candidates rejected is so small as scarcely to bear an appreciable proportion; and it is well known that not only many of the unsuccessful applicants for degrees, but also many of the students who have attended only one course of lectures, and never applied for an examination, enter at once upon the active duties of the profession, and engage in practice.

These are recognized and held by the public in the same light as regular graduates. The consequence is, that their want of general and professional knowledge, which is often manifested in courts of justice and elsewhere, reflects directly upon the profession of which they are supposed to be *bonâ fide* members, and tends materially to

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bring it into general disrepute. Nor is this want of a proper education confined exclusively to those who are possessed of no diploma.

We regret that candor and justice compel us to admit, that the most deplorable ignorance and unfitness for the responsible duties of a physician are often exhibited by those who hold the diploma, and who are thus indorsed as being qualified and competent. This fact is so notorious, that it would be a waste of time to cite instances in support of it. We may, however, assert, upon our personal responsibility, that we have known more than one graduate of some of our colleges, who could neither translate the Latin of his diploma, nor yet write and speak his own language correctly! The records of the army and navy show us how small a proportion of candidates for medical offices pass a satisfactory examination and are approved; and yet, nearly all of these are graduates in medicine, for the most part fresh from their studies, and subjected, not to a rigorous, but a fair and impartial examination.

The result of the rapid increase of the number of physicians in this country, and the facilities afforded for obtaining diplomas and engaging in practice, has been to lower the standing of the profession in public estimation,* and beget a species of rivalry and competition for practice which is calculated to degrade it still farther. The fact is, that the class has become so numerous, and there are so many candidates for public patronage, that it is almost impossible, for many of those located in towns and in the large cities especially, to obtain a livelihood in a perfectly fair and honourable manner, and they are, as it were, compelled to resort to unprofessional means for gaining notoriety, and procuring business. The proportion of practitioners to the population is too great; in the cities this is evident to all; and even in country places, unless it be the far West, there is a greater number than can find employment. In New York, with a population of about 400,000, there are estimated to be as many as 800 physicians, not including the hordes of quacks who infest the city, nor apothecaries, who often take upon themselves to prescribe for the sick; this gives a proportion of about 500 persons to each physician.

In London, the population of which is about 2,000,000, there were, in 1847, 2,500 practitioners, including all classes of medical men; this gives a proportion of 800 persons for each physician.

In Paris, the population is about 1,000,000, and the number of

* These remarks apply only to the estimation in which the profession is held in certain localities, *as a profession*. It is believed that the social position and standing of the educated physician, in every part of the Union, is higher than in any other country.

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all classes of practitioners (except midwives), on the 1st of January of the present year, was 1,555, which allows about 642 persons for each one.

From the above numbers, however, there must be deducted that numerous class of paupers and others who are provided with medical attendance gratuitously, through dispensaries, hospitals, and other public and private charities; and also those who call upon practitioners to attend them privately without being able to afford any compensation. These are estimated, by a late writer, to comprise, in all large towns at least, one-fourth of the population; and if we make a proportionate reduction for each one, the following would be an approximate result:—

New York,	375	persons	for each	physician,
London,	600	"	"	"
Paris,	413	"	"	"

The numbers in New York should be still further reduced, by deducting those who are attended by irregular practitioners, and prescribed for by apothecaries; for, it will be recollected, that the latter were excluded in estimating the number of physicians at 800, whereas, the numbers given for London and Paris, include *all classes* of practitioners, except the midwives in Paris.

Here, then, we find that the maxim of political economists, that the supply always equals the demand, is more than verified, for the supply of physicians in New York is far greater than sufficient to supply any demand for medical services; and that the profession there, at least, is over-stocked, cannot be questioned; for, even supposing their business to be equally divided, how many patients would a physician be likely to have in the course of the year from among about 350 persons? We are thoroughly convinced that the number of physicians is already greatly disproportioned to the population of the country, and some check should be put upon their increase.

The next and last subject to which we would call your attention is, perhaps, the most important that we shall have to examine. It is the question of the propriety of establishing independent boards of examiners, for conferring licenses to engage in the active practice of medicine and surgery.

The profession in this country appears to be divided in opinion as to the advantage to be derived from legislative interference in medical matters. Many honest and competent members of it entertain the belief that it is more conducive to our well-being to be left en-

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tirely to ourselves to prosecute and protect our own interests; while many others, equally honest, and whose opinions are entitled to the same amount of respect, think it to be both right and proper that our governments should extend their support and protection to those whose time and talents have been devoted to obtain a place in our ranks. We believe that the latter class is by far the more numerous, and their views are in accordance with those of your committee.

It appears to us that there are but two courses to be pursued to insure the public and the profession that protection which both are entitled to claim and expect: the one is through the profession itself, and the schools; and the other through the law.

So long as charters for medical colleges can be obtained with the facility which is now afforded, and so long as professorships continue to be sought after, not only for the direct profits which they yield, but also for the indirect and valuable advantage which they offer, by enabling those who hold them to become extensively and favourably known, thus leading to the attainment of business and distinction, every inducement will be held out to young men to engage in the study of the profession—and rivalry and competition among the institutions themselves, to obtain popularity and large classes, must lead inevitably to the cheapening of the degree, and a lessening of the requirements for obtaining it. We all know that the reputation and success of an institution are proportionate with the size of its classes, and the number of its graduates. Hence, every means is resorted to for obtaining the foremost numerical position. The degrees from all the colleges confer the same rights, and yield similar honours: the public look only at the parchment, and make no distinction as to the source whence it was obtained. This being the case, no inducement is held out to the teachers to impose adequate restrictions upon their pupils, and none is offered to the pupils themselves for incurring more trouble and expense than may be absolutely necessary for obtaining the doctorate.

We think that no material and lasting good can arise from an elevation of the standard of requirements by one or two colleges alone. The only manner in which the desired end could be obtained would be, by the coöperation of all the colleges, in the establishment of a uniform curriculum;—and is this practicable? Can it be expected that rival institutions, possessing a great diversity of interests, and unequal facilities for teaching, will unite in a general scheme, which would have the effect of concentrating students at such colleges as are in reality best prepared to impart instruction? We

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unhesitatingly answer in the negative—it is useless even to ask it. But let each State of our Union authorize the establishment of a board of disinterested examiners, who shall have no direct interest in view, and the obtaining of whose certificate shall be always obligatory, prior to permitting an individual to engage in practice, and a direct check is at once imposed, which will make it to the interest of the schools to raise their standard to the level of that established by the licensing boards, and a fair and just rivalry will then commence between the colleges, as to which shall impart the requisite amount of information in the shortest space of time, and at the least expense to the student.

This plan has been adopted by our general government in the case of the army and navy, and you are aware with what success. Through its agency, the character and reputation of the gentlemen composing the medical staff of both branches of the public service have been raised to an enviable height, and they deservedly hold rank with the most accomplished physicians and surgeons of any nation. It has also been shown, in another part of this report, that the system is in vogue, and is found to work well in many parts of Europe, where its adoption has been attended with the most satisfactory and beneficial results, both to the public and the profession. On the other hand, in those countries in which the diploma carries with it the right to practice, consequences of the most serious character are found to ensue; and there is always a large class of imperfectly educated physicians, whose association with the profession on an equal footing tends directly to its degradation. In England, the loudest complaints are made, not against the higher order of medical men, whose time and means and inclination have led them to seek their education at the best sources, but against that numerous body of active practitioners who belong acknowledgedly to an inferior order, and who are known as "medical men," or "licentiates," and "practicing apothecaries." An endeavour is being made in that country to change the existing order of things in this respect; and while we hold that our own physicians, graduates of almost any of our medical colleges, are fully equal, and, in many respects, far superior to the general practitioners of England, we think that a change is imperatively demanded with us also.

The plan of establishing independent examining and licensing boards is, as you are well aware, neither original with us, nor a new thing in the United States. It has been so often and so freely discussed, that all of you are familiar with the subject, and its suc-

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cessful introduction into some of the States, particularly that of New Jersey, where it is now in force, shows that it is both practicable and beneficial to the people and to the profession.

The arguments in favour of and against separating the teaching and licensing powers, which were brought forward at the Philadelphia Convention of 1847, in the majority and minority reports of the committee to which the question had been submitted, contain nearly all that could be said on either side; and as you are doubtless familiar with them, we will not trouble you with a repetition, but proceed to indicate what measures we would propose for your adoption, for the purpose of accomplishing the object.

In cases where the chartered rights of colleges are involved, where their diploma conveys a legal right to practice, the organization of licensing boards, to which their graduates would have to apply, for permission to engage actively in their professional pursuits, would be impracticable without a violation of legislative faith, or a voluntary relinquishment, by such institutions, of a privilege which they hold to be advantageous.

But inasmuch as legal restrictions in regard to the practice of medicine are but rarely enforced, and any one, whether a graduate or not, is allowed to enter the field, and with impunity compete with those who have studied, and obtained diplomas (even from these privileged institutions), the right conferred by charter, is, in reality, of no service whatever; and we do not doubt, from the general good that would ensue to the whole profession, that the educated and accomplished gentlemen, who are connected with such schools, would be induced to yield to the general voice, and consent to abandon the now valueless prerogative which they enjoy.

In States where there are no medical colleges, and those in which a charter does not confer such privileges, there would be found no legal impediment in the way. Many difficulties might naturally be anticipated in carrying out the plan which we propose, both in its details, and in obtaining an acknowledgment of the principle from our several legislatures: but with united action we think that all obstacles may be overcome. The influence of our profession, when united for the accomplishment of an end which is to tend to the public good, is too powerful to be disregarded; and right could be made to triumph over all opposition.

Should the principle be approved, and the recommendations which we shall propose be adopted by you, means would have to be taken for bringing the subject, at as early a period as practicable, before

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the legislatures of the different States. This would probably be done through the agency of committees, and these should be furnished with such details in regard to the matter, as would facilitate their duties. With this view, we have drawn up with great care the resolutions which will be submitted in reference to the subject. They are, as a matter of course, open for your amendment and improvement.

Should our legislatures, when appealed to, consent to the measure which we hope you will propose to them, it will become necessary to consider the mode in which the examining boards ought to be appointed; the question of the amount and manner of their remuneration; the method of conducting the examinations; the periods for meeting; the number of members that each board should contain; and other matters, which it appears to us will be best left for the advice and decision of the profession of each separate State, which can be obtained through State societies, where such exist; or else by the agency of special State medical conventions. It is highly desirable, however, that the requirements of the several boards should be as nearly the same as may be found practicable, and two principles should be uniformly insisted upon, viz.: that the examinations should be public, at least to the profession; and that the pay of examiners should never be derived directly from the candidates.

The subjects embraced under this section of our report are too numerous for us to enter into a discussion of more of them at the present time. We have already occupied more space perhaps than we should have done, and, after a few words in reference to the matters that we were directed especially to examine, we will conclude by submitting to you the resolutions that we have unanimously determined to present for your consideration.

SECTION V.

Subjects specially referred to this Committee.

The subjects specially referred to this committee, at the last meeting of the Association, were as follows:—

1st. "*Resolved*, That a college or bureau of examiners be instituted, to consist of the president and officers, *ex-officio*, and seven of the members, to be chosen annually, and that they be invested with power to confer diplomas on such persons as may apply for the

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same, provided they sustain satisfactory examinations in all those departments of literature and science, which may be deemed by the said board necessary to belong to an accomplished physician.

"*Resolved*, That these diplomas may be of two grades: *First*, that of *Bachelor of Medicine*, to be conferred on those who may be found to possess the lowest standard of qualifications contemplated by this Association as essential; and, *second*, that of *Doctor of Medicine* on those who may have previously obtained the degree of A. M. from some accredited college, or who can sustain an examination that would entitle him thereto.

"*Resolved*, That the fee to be required therefor shall not be more than sufficient to defray the cost of procuring and preparing the same."—*Trans. Am. Med. Association*, vol. i. p. 43.

In regard to the subject of the foregoing resolutions, your committee is of opinion that the propriety of the measure contemplated by them is manifest. We think, however, that present action on the subject would be premature, and, therefore, advise their being informally passed over.

2d. The second matter referred to us, is that embraced in the following resolution:—

"*Resolved*, That the power vested in the State and county medical societies, to confer a license legally to practice medicine, is liable to great abuse, and that the Association earnestly recommends the repeal of that power."—*Trans. Am. Med. Assoc.*, vol. i. p. 44.

That the power here referred to as vested in State and county medical societies, to confer licenses to practice medicine and surgery, is liable to great abuse, your committee is prepared to admit —indeed all such privileges may, and no doubt are, frequently abused; but that the evils resulting therefrom are greater than those attending the conferring of medical degrees upon persons not entitled to receive them, we are disposed to contest, and inasmuch as our recommendations include suggestions and propositions in reference to this matter, it appears to us unnecessary to advise any further action in regard to this resolution.

Resolutions.*

1. *Resolved*, That the attention of medical colleges be again directed to the resolutions of the Committee on Preliminary Edu-

* For the resolutions, as finally amended and adopted, see p. 40.

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cation, adopted by the Medical Convention of 1847, and that they be advised to require from their students that they shall, in all instances, possess certificates of primary acquirement prior to graduation.

2. *Resolved*, That the several State and county societies, as well as all voluntary medical associations throughout the country, be advised and requested to adopt the plan proposed by the Medical Society of the State of New York, at its last annual meeting, for insuring due attention to the subject of preliminary education.

3. *Resolved*, That this Association does not sanction or recognize "college clinics" as *substitutes* for hospital clinical instruction; and that the medical colleges be again advised to insist, in all instances where it is practicable, on the regular attendance of their pupils, during a period of at least six months, upon the treatment of patients in a properly conducted hospital, or other suitable institution, devoted to the reception and care of the sick.

4. *Resolved*, That it would conduce both to the convenience and advantage of students, if the subjects taught in the colleges were divided into two series, the one of which should be studied during the first year's attendance on lectures, and the other during the second session; and that examinations should be instituted at the close of the first course of lectures on the subjects taught during that course, certificates of which should be required prior to the final examination.

5. *Resolved*, That it is the deliberate opinion of this Association, that the plan of examining students for medical degrees in private, and before one professor only at a time, is highly defective, and should be at once discontinued.

6. *Resolved*, That examinations for medical degrees should be practical; and that it is desirable, as far as practicable, that they should be conducted in writing as well as *vivâ voce*.

7. *Resolved*, In view of the importance of a due knowledge of practical pharmacy, that the medical schools be advised to require from candidates for degrees, that they shall produce satisfactory evidence of their having been engaged in compounding medicines, and putting up prescriptions, either under the direction of their private preceptors, or in the shop of a recognized and qualified apothecary.

8. *Resolved*, That the interests of both the public and the medical profession would be promoted, by the establishment of boards of examiners, in each of the several States of the Union, to exam-

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ine candidates for license to engage in the active practice of medicine and surgery.

9. *Resolved*, That the standard of requirements established by the examining boards of the several States should be uniform, and that the examinations should, as far as practicable, be conducted in a similar manner.

10. *Resolved*, That the examiners should, in all instances, satisfy themselves that candidates are familiar with the elementary branches of general knowledge.

11. *Resolved*, That, for the purpose of carrying out the objects contemplated in the last three resolutions, a special committee of seven members be appointed to prepare a memorial and form of law in reference to the subject of the establishment of boards of medical examiners, to be submitted to this Association at its next annual meeting.

All of which is respectfully submitted,

F. CAMPBELL STEWART, *Chairman*,
JOHN WATSON,
JOSEPH M. SMITH,
} *New York*,
A. L. PEIRSON, *Salem*, *Massachusetts*,
SAMUEL H. PENNINGTON, *New Jersey*,
P. C. GAILLARD, *South Carolina*,
DANIEL MEEKER, *Laporte*, *Indiana*.

NOTE. The chairman of the committee takes pleasure in acknowledging his indebtedness to the following gentlemen, for their kindness in procuring and furnishing him with valuable information in regard to many of the details of the foregoing report, and the assistance which has been so promptly rendered by them all: Dr. Marcus L. Taft, and Dr. A. Gescheidt, of New York; S. I. Fisher, Esq. and M. Badarous, of Paris; William Browne, Esq., late President of the Royal College of Surgeons of Edinburgh; Mr. John Hamilton, Surgeon, of Dublin (through Dr. John Watson); and Dr. Antonia Caccia, of Switzerland, and late of St. Petersburgh; as also to each of the several members of the committee.

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E.—1.

The Views of the Medical Faculty of Harvard University, relative to the extension of the Lecture Term. Communicated to the Committee on Medical Education.

THE Committee of the Medical Faculty of Harvard University, to whom was referred the consideration of the expediency of extending the course of lectures beyond four months, as recommended by the American Medical Association, report that, in their opinion, this measure is not called for, in order to the improvement of medical education; and they propose, therefore, the adoption of the following Resolution.

Resolved, That it is not expedient to extend the course of medical lectures, given at this institution, beyond its present duration.

The committee feel bound, however, out of respect to the body from which this recommendation proceeds, and also from a regard to the many eminent names in the profession by whom it has been sanctioned and adopted, to state the reasons for their dissent.

They fully admit the propriety of attempting to raise the standard of medical education; although they do not believe, with many, that the standard has been lowered. In many schools, no doubt, young men very imperfectly prepared are suffered to take a degree; yet, upon the whole, there seems reason to think that the character and education of physicians have improved, and that those who now enter the profession are better qualified than they were twenty-five years ago. Still, a regard to the public good and to the honour of the profession, demands that there should be a continued effort for improvement, and that the standard of acquirements should be constantly raised, till the attainments of medical men here are fully equal to those of their brethren on the other side of the Atlantic.

Admitting, then, that a continued effort should be made to effect this great purpose, we are constrained to differ from the Association in our views of the means by which it is to be done. We do not believe that it will be in any degree promoted by increasing the

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number of months devoted to attendance on medical lectures; on the contrary, we apprehend that a longer attendance than that now required, would be detrimental rather than beneficial; and this, whether the total amount of instruction thus given be increased or not.

The whole proposition proceeds from what seems to us an exaggerated view of the importance of teaching by lectures, as compared with the other means of medical instruction. It is virtually assumed that they constitute the principal and most valuable part of this instruction; it seems to the committee, on the contrary, that they constitute a subordinate and subsidiary part.

No course of lectures, however prolonged, can give complete instruction in any department of professional study. If this be attempted, the teaching must necessarily be superficial. Lectures cannot communicate all the knowledge of the profession; they cannot approach this. It is a mistake to consider lectures as having this for their purpose. Their real value is diminished, where they are given with such a view, of their proper object. The great purpose of lectures should be, to teach the student how to learn for himself. They are not to take the place of private, individual study, but to inform the pupil how that study may be pursued to advantage. Much may be done by the teacher in this way, to develop the principles according to which medical investigations are to be pursued; to lead the student to right modes of thinking, reading, and observing; to aid him in forming just views of the proper subjects of inquiry, by laying before him examples of the best ways of getting at the truth; and by pointing out the fair proportion which should be regarded in the relative attention paid to different branches of professional study. But, after all, these can only be helps. Learning is a thing which no one man can do for another; the weight of education must fall upon the learner; what he does not get and make his own, by the active exercise of his own powers, he does not get at all; he must not merely receive, he must take.

This, whilst it is true of all learning, is particularly true of that learning which is to be brought into use in a practical occupation; knowledge that is to be thus used ought to be made our own by an active effort. It has been argued, that prolonged, as well as repeated attendance on those lectures which are demonstrative in their character, is especially necessary to the education of the medical student; implying the sufficiency of such courses for instruction in these branches. But is it to be supposed for a moment, that the student

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can acquire such a knowledge of anatomy as will stand him in stead in the practice of surgery, by *any* amount of attendance on a demonstrative course of lectures? Certainly not. He gets, in the lecture-room, a general view of the subject; the mode of studying it; the kind of knowledge he must aim at; the relative importance of different parts of anatomy to practice; he learns which of them are to be studied minutely, and which more generally. In short, he has received a sort of training which enables him to *begin* the study of anatomy himself, for practical purposes. This training is of inestimable value to him; it will save him a vast deal of time in his future progress; but still, it does not make him an anatomist. The true anatomical education for practical life, can only be had by personal study on the human body in the dissecting room.

The same general remarks hold true of chemistry; and, to a greater or less extent, of all the branches which are taught in a medical course; less forcibly, indeed, in their application to those which are didactic in their character, but in no inconsiderable degree of all.

It is further to be observed, that too prolonged an attendance upon lectures, and a disproportioned dependence upon them as means of instruction, is likely to beget injurious habits of mind in the student. The object of the teacher is, and should be, to present the truths he wishes to enforce, and the knowledge he seeks to impart, in a form as attractive as the nature of his subject admits, in order to engage and keep up the attention of the student. Hence, although the student may listen with interest, he does it without effort; his mind is not actively employed. It is not generally true that that which is listened to with pleasure, and without effort, is the most perfectly comprehended or retained. On the contrary, effort is necessary for both. The frame, then, into which the mind falls during attendance upon lectures, is apt to be one of listlessness, if not of languor. This is not true of all men, but it is of most. Especially is it the case with students, towards the close of a term of lectures, when they have been occupied for weeks and months in the same routine. This evil will be but partially, if at all remedied, by diminishing the number of lectures on each day. The influence exerted in forming the state of mind referred to, is very much the same, whether the daily number be four, five, or six. Attendance upon them is the business of the day, and the burden of the day. They occupy the thoughts and attention to the exclusion of other objects; and regulate, for the time, the student's habit of mind.

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There is nothing of the same injurious influence exerted by active personal study. It does not become wearisome, or irksome, or exhausting, by continuance for even an indefinite time, as is the case with attendance upon lectures. This is wearisome, because it is passive; just as a continued, fixed, monotonous position of the body, is far more fatiguing than any severe, active, muscular exertion for the same length of time.

We feel compelled, therefore, to express our decided conviction, that four months in the year is quite as large a proportion of the student's time as can be profitably occupied in attendance upon lectures; and that the remaining eight may be devoted far more advantageously to private personal study. This opinion we express without intending, in the slightest degree, to under-estimate the value of teaching by lectures. Their place in medical education is of the utmost importance; there is an influence exerted by them, which can be exerted in no other way. We are only anxious that they should fill no more than their proper place.

As we doubt, then, the utility of the measure proposed, for the improvement of medical education, it may be proper to state what other measures seem likely to effect this very important purpose.

One of the greatest obstacles to the improvement of medical education in this country, is the deficiency of sufficient preliminary education in those who enter the profession. It is well known that but a very small proportion have had such previous training as is absolutely necessary, in order to begin with advantage the study of a science. Many have barely had the common education of our public schools; and some even this in an imperfect manner. Such men have not yet learned how to learn, and yet they start at precisely the same point, and are only required to go through the same course of study as those who have undergone the discipline of a college education.

To permit this, is to undervalue the dignity of our calling. It is to admit that the acquisition of a competent amount of medical knowledge is so easy a matter, that any uneducated man, as well as the graduate of a university, may, in three years, have so mastered all those complicated and difficult branches of study which medicine embraces, as to be qualified to assume one of the highest responsibilities of human society. This is most derogatory to our profession. It is disastrous in its influence on medical education, and on the medical character. What motive is there for him, who intends to make medicine his occupation, to toil through four years of hard

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preparatory study at the college, if he finds that the workman, who leaves the plough or the anvil on the same day that he quits the walls of his alma mater, may enter the world, at the end of three years, with the same nominal rank in his profession, and with the same ostensible claims on the confidence of his fellow-men? It is only necessary to state this evil, to have its magnitude perceived. No extension of the term of lectures—no other measures that are contemplated—will raise the character of our profession, till either a liberal education is required as a necessary preliminary to a medical; or till a longer term of study is required of those who have not had such an education.

Another essential condition is, that all institutions should require and enforce three years at least of full and entire devotion to medical studies before a degree is conferred. How faithfully this condition is complied with, we are not able to say. We have reason to believe that it is, in many instances, but imperfectly enforced; and that, if students have attended two full courses of lectures, the length of their term of studies is not rigidly inquired into.

At the last annual meeting of the Association, great stress was laid upon examinations connected with lectures. Of their value, we do not doubt; and yet a little reflection will show how very imperfectly they will answer the purpose expected of them. To be at all effectual, each student should be examined frequently and thoroughly upon all the lectures which he hears. The slightest calculation will show that to examine each student, in a class of one hundred, but once a week in each branch, would require an amount of time quite equal to that of the lectures he attends; thus doubling the hours during which he is occupied; and, of course, doubling a burden which is now as great as most students can bear without failing in health. What, then, must be the case, when the classes are two, three, and four hundred?

Whatever, therefore, may be said of these examinations, every man practically conversant with teaching, knows perfectly well that they can amount to very little, so far as the mass of students are concerned. Those who take part in them must be very few; and will be generally those who, from their love of distinction, and their ardour in the pursuit of knowledge, stand least in need of the discipline.

The only method which can, in our opinion, effect the purpose intended, is to establish and require a system of personal private study in the interval between courses of lectures, under the direc-

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tion of competent instructors. This system should embrace examinations, recitations from books, and, in the demonstrative branches, demonstrations on the part of the student, instead of the instructor, but still under his direction and superintendence. This system might do much to promote a better education. It would beget habits of active, thorough study. It would enforce an active, practical discipline of the mind. Knowledge acquired in this way is impressed upon us as knowledge acquired in no other way can be.

In this point of view, we regard the establishment of private medical schools as of very great importance. They may prove of the utmost value in bringing about a more perfect medical education. We consider it well worthy the attention of the Association, whether it might not be expedient to take measures to promote attendance at such schools; and to recommend, at least, if not to require, that every student should spend in them one, certainly, of the three years of his pupilage.

JOHN WARE,
JACOB BIGELOW,
O. W. HOLMES,
Committee.

At a meeting of the Faculty, the above report was accepted unanimously; and it was voted to communicate it to the Committee on Education of the American Medical Association.

BOSTON, *April*, 1849.

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E.—2.

REPORT

Of the Special Committee appointed to prepare "A Statement of the Facts and Arguments which may be adduced in favour of the prolongation of the Courses of Medical Lectures to six months."

THE Medical Faculty of Harvard University, transmitted to the Committee on Medical Education, a formal defence and advocacy of four months' course of instruction in the medical schools. It was communicated to the Association, appended to the report of the committee, and directed to be published with it.

The views upheld in that paper, are in direct opposition to the views and action of this Association, from its commencement to the present time. While, therefore, from deference to the highly respectable institution from which this document emanated, it has been placed on our Transactions, the Association felt that it was due to its own self-respect and consistency, and to prevent misconception, that it should be accompanied, at the same time, with the views and principles it has uniformly maintained on the same subject.

The undersigned, a committee appointed to carry out that purpose, in pursuance of their duty, make the following exposition:—

The medical profession was deeply impressed with the belief, that it had gradually become lowered in its standing. It no longer occupied the high position in public confidence that was once accorded to it. Everywhere it met with successful competition from empirics and pretenders; while absurd, fallacious, and dangerous doctrines were countenanced, not by the ignorant and vulgar alone, but by the educated and intelligent. It was not difficult to trace this abasement of the profession to its true cause. It had ceased to be a highly educated class. In its ranks were found those not only devoid of all pretensions to general science, but many who were absolutely illiterate. He must have occupied a low station, indeed, who could not produce the evidence of a diploma. The parchment re-

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fused in one quarter could be procured from another. To the imperfect and restricted courses of the schools, and to the low standard for medical graduation, were attributed the superficiality and the degradation of medicine. Dissatisfaction pervaded the profession, and distrust of the profession spread throughout society. The barriers that had separated the cultivated physician from the rude pretender and empiric, were broken down. Before the community, they stood on the same level, bore the same title, and presented the same outward attributes of professional knowledge and skill.

Such was the feeling on this subject, possessed by the profession throughout the country, that no sooner was the tocsin struck, in a distant and obscure village, by an earnest heart and hand, than it was responded to throughout the land. A wide-spread movement of the profession took place. From that movement this Association had its origin; it stands, in some measure, pledged to accomplish a reform in the medical education of the country. Should it pass by, or fail to render effective this leading idea of the profession, it will have neglected a chief object of its institution, and will disappoint the just expectations of its founders.

The subject of medical education is not limited to a mere consideration of the interests of students and schools. They are not the only parties it concerns; it occupies a much wider field, and embraces interests and relations of much deeper import. To discuss this question in its true spirit, and to reach all its consequences, it must be examined in all its bearings. Results without this course must be invalid. It is this broad view that governed the decisions of this Association at its former meetings, and its reaffirmance of them at its present session. On this question it was regarded that the public, the science, and the profession had interests as deeply involved as the students and the schools; and that the Association was bound to look to and protect them. A brief recapitulation will establish this point.

1st. *The public are interested.*—No well-constituted society can exist without a professional class devoted to watching over and preserving the health of its members. Man, from the nature of his existence, is subject to suffering, to disease, and to death. The causes by which these conditions are produced are ascertainable, may often be removed, or mitigated in their action; while disease may be cured, suffering relieved, death averted. But for those ends, knowledge, obtainable only by profound research, long devotion of time, accumulation of experience and observation, and great mental

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efforts, is indispensable. Without these requisites, medicine fails in its objects; it injures where it seeks to benefit; it does harm where it would do good; it excites distrust; and, in its imperfect condition, resembling an empiric art, maintains in the public mind a predilection for empirical practice. It is the interest of the public, that medicine should be elevated above the rank of an empirical art to that of a science and a philosophy, which it is capable of becoming, and which is its true character. This is to be effected, principally, through a sound and fully developed educational training and system.

2d. *The science is interested.*—Many intelligent men have doubted whether medicine was, or could be, a science. This skepticism still prevails extensively amongst the educated. It was not without foundation until a comparatively recent period. But within the last half century, no one acquainted with the progress of medicine can hesitate to recognize its rapid expansion into a science, and that it is rapidly entering the circle of the positive sciences. It is now far more certain in the judgments and opinions of well-educated medical men, than are the law, theology, or the moral sciences.

The advances now being made are so rapid, that every department of medicine is acquiring more and more of this positive character.

It cannot be denied, that this new impulse to medicine, if it did not originate in, was mainly produced by the new organization of the medical schools of France, during the progress of the French revolution, and since; as well as in the extension and improvement effected in the medical schools of Germany, and, of late, in England. We cannot enter any claim to an active participation in this movement of progress.

The new branches that have been created, and which constitute the scientific basis of medicine, are unknown even by name to large numbers of our practitioners.

It cannot be said that any of them belong to the proper courses of our schools. It is vain to expect that medicine, as a science, can be widely known and diffused, when it is not taught as a science in the schools.

3d. *The profession is interested.*—There is a limit for the demand for medical services. That limit is more than reached in this country. The profession is full to redundancy. It is not supply that is wanted: there is more than sufficiency as to quantity; it is an improvement in the quality, that the public good now requires.

An over-crowded profession brings on its degradation. Competition takes a false direction. It cheapens labour and services. The

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practice ceases to be compensatory for the time, expenditure, mental and physical labour, required for high professional attainments and the services rendered. Men of distinguished abilities abandon the profession; educated youth feel no ambitious incitements to enter its ranks, and the lower motives of human action predominate in and overshadow the whole profession.

But more serious evils flow from over-crowding the profession. The pressure of hard necessity and of grinding want, all experience warns us, is the fertile source of moral delinquencies, of vices, and of crimes. How many, placed in this condition, cannot consent to starve. They save themselves by resorting to quackery, by a debasement of honourable principles, and by a servile subserviency to the prejudices and ignorance of the community; or, sinking still lower, pander to the vicious, and become accessories to atrocious crimes.

The profession accuse the schools of hastening this disastrous state.

The number of graduates, besides the influx of irregular practitioners, that annually swell the ranks of the profession, is far greater, it is believed, than are required by the increase of the population. Taking the number of graduates in the European schools, and the proportion to population, as compared with our own country, the statement will be borne out. On the continent, furthermore, it will be remembered that the number of irregular practitioners is repressed by the law, and is therefore small.

The profession look to the schools to reform this evil; and they anticipate longer courses, new branches added, higher requisites for graduation, and an adequate preliminary education, as the means by which it is to be accomplished.

To complete this recapitulatory summary, we may add:—

4th. *The students are interested.*—Numbers of the students do not understand their true interests. They enter on the study of medicine, wholly ignorant of its true character, and of its high requirements. Adopting the vulgar and common opinion, they look on the practice of medicine solely as a trade, as a means of subsistence, or as a road to wealth. Influenced by these considerations, they suppose it is their interest to enter the profession and begin the trade, with the smallest outlay of time, money, and application possible. Whatever or whoever favours this course finds, with this class, a preference.

Too late, the error is discovered.

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True and permanent success in practice depends on the confidence of the enlightened public; and that confidence is withheld when it has no other foundation than a short and hurried preparation for so high a calling. The superficially educated physician will always be regarded by the public as very little raised above the common empiric. Mediocrity or disgraceful failure must be the lot of the larger portion of those who thus err from misinformation and mistaken views. The true friends of the student, who best consult his lasting welfare, will oppose them in this lamentable mistake. Intelligent, educated, and endowed students, understand the subject better, and appreciate more justly their proper interest. They spare no pains, time, or expense, in fitting themselves for the great mission and responsible duties of their profession. They rise steadily in public confidence, and attain eminence and distinction. Such constitute a fragment only of the medical classes. They are capable of working out their own course, and of gaining their proper position independent of the rules and regulations and training of the schools. It is not for them they are to be framed; but for the masses, who must be made to walk in the way they should go, and who do not know, or who neglect, their best and truest interests.

5th. *The schools are interested.*—But the strongest temporary interest of the schools, it is believed, is frequently opposed to the important interests that have above been passed in review. The object of every school is to attract classes of the largest numbers, to exhibit the most numerous graduating class each year, and to obtain the highest revenue. But the schools have been, and are still placed in an anomalous and a false position. The students are the patrons of the schools, and in some measure regulate the courses of instruction; for a school that would take a stand, at once placing its courses as to number and time on a level with the science, and demanding the necessary requisites, would soon be compelled to close its doors.

The schools the best disposed can do no more than exact what the classes are prepared to bear.

In the present position of the schools, there is a temptation, especially in the matter of graduating students, to court popularity, and, by too much leniency, to run counter to the interests of the public, the science, and the profession.

This relation of the schools to the student, is the great obstacle to every advance in medical education. Its change, is the first step to medical reform. The patronage of the schools should belong to the profession at large. They are the only competent judges of the

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proper merits of the schools, and are the fittest advisers of the students.

In the great work of medical reform now in action in our country, a large portion of it must be the task of the profession. Without their aid, the schools can effect but little. The initiation into the profession is in the hands of the practitioners. To them it belongs to insist on a full preliminary education, and good moral standing as requisites, before receiving students into their offices. They should insist on directing their education to its conclusion, and on the selection of the schools at which to graduate.

The schools sustained by the profession, and independent of the classes, will then find their interests to coincide with all the great interests of medicine. They can enlarge and prolong their courses, can demand higher requisites for medical instruction, and elevate the standard of graduation.

Such is a brief outline of the views entertained by the Association, the representative and legislative body of the medical profession, in the great scheme of medical reform they have now in hand. A reference to what is embraced in the idea of a scientific education, and to the means by which it may be realized, will be sufficient to demonstrate their soundness, and vindicate them from the charge of extravagance.

Education, or systematic plans of instruction, the mental culture and training for the acquisition of knowledge, are exponential of the knowledge, intelligence, and intellectual wants existing in any community. The one is always in adaptation to the other. This is true of the special instruction of a particular branch of knowledge, as well as of general education. A scheme of scientific instruction should embrace the whole science; no part should be omitted. The entire science should be placed before the student. The teachers are not justifiable in suppressing any portion. No plan can perfectly fulfil the requisitions of scientific instruction, can do justice to the student, or promote the diffusion of science and of truth, when a large portion of the body of the science is subjected to a trenchant excision, or any portion is imperfectly taught.

In an extended system of instruction, there is much the student will not master, much that will have escaped his attention, much which he ought to know, that he has not learned. But this is not a sufficient reason for the mutilation of the science; still less is it an apology for superficial and imperfect instruction. It is far better the student should leave the schools impressed with the conviction

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that he is ignorant, that there is a vast amount of knowledge which he must acquire, than that he should suppose the small and limited circle of his scholastic studies forms the boundary of the science, and the limits of his acquisitions.

In defence of the present system, it is alleged that it is as much as a student can bear; that additions to the number and time of the present courses would oppress the mind, and bewilder the intellect of the student, whose powers would fail and faint beneath the augmented burden. We give no credit to this statement. It may be, that some who now enter the ranks of the profession, with a low grade of intellectual endowments, and a lower grade of acquirements, could not master the difficulties of a higher order of scientific education, and would be excluded from the schools and the profession by their incapacity. But this would be a desirable result, and an advantage to the individual, to the profession, and to the public.

The assertion has no application to the large body of the students. If it were correct, that American students are incompetent to go through the labours imposed on European students, there must be degeneracy in the race, and our position would be lamentable and hopeless. We must abandon all expectation of becoming original in knowledge or science, and resign ourselves to continue, what we have been for too long a time, the mere recipients of the ideas, thoughts, and discoveries of the European investigators, and cultivators of medical science.

The American students are not, as a body, deficient in application and energy, or in intellectual vigour and endurance. The work they are set to do is done well and effectually. It is not their fault if they do not understand medicine as the most elaborate of sciences, requiring extended, varied, and profound knowledge. Nowhere is it presented to them as such; not by their first preceptors, who practice medicine as an art, and too often look on it only as an employment; nor by the schools whose courses of lectures cover but partially the field of medical research. Let the profession, the student, and the public, understand the nature of medicine cultivated as a science; the enlargement that will follow in the greater expanse of its usefulness, and the improvements it will introduce into the art, and it will be found the medical instruction of this country will not be lagging in the rear; nor our medical students incapable of anything that may be required of them.

It belongs to the schools to spread this knowledge before the

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community. They ought to be the depositories of science; it should be their special office to keep pace with the progress of knowledge, and to infuse it into each successive body of students, who recruit the ranks of the profession. This is one of the methods by which the profession is to be kept on a level with the advances of medical science. In this important duty, the schools of this country have been defaulters. They have been thrown into a false position by an adherence to the defective system first adopted in the infancy of our civilization. They cannot escape from this dilemma; they cannot perform their duties to the science, to the public, the profession, the students, or do justice to themselves, while four month courses are persisted in. This, the first step in more extensive and important reform, must be made.

It will be said, that the prolonging of the courses of the schools to six months cannot effect this object. That is true; and is not expected of it. But it is one of the primary and most essential steps to be taken, in carrying into effect the plan of proceedings for the purpose in view. A beginning must be made, and this is the beginning of the reform in medical education.

It is absurd to suppose that any effectual improvement can be made in the education of our schools, bringing their instruction up to the present elevation of medical science, while the four month courses are retained.

The plan of four month courses of lectures belongs to the origin of medical schools in this country, and arose out of the necessities of the case. The establishment of medical lectures at all was a bold innovation; and, lest it might act as a discouragement to students, the term was made as short as possible, and limited to four months. Yet, at that period, medicine had but a moderate expansion, and scarcely made pretensions to a scientific character.

Several branches were assigned to a single chair. Anatomy, Surgery, and Midwifery, were the department of one professor. Chemistry was rudimentary, and was attached to various chairs at different times. A single experiment illustrated the whole course. Until a recent time, the institutes of medicine, and the theory and practice were combined in one course. During the life of the late Professor Rush, the lectures of the first department occupied from the first of November to the middle of January; and those of the second, from the middle of January to the first of March. After his decease, the institutes, for some years, no longer formed a part of medical education. It is only in the last twelve years that the

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institutes, in some schools, have formed an independent course, while in many others, neither the institutes, nor any of the important branches embraced by them as a whole, are included in the curriculum of instruction.

Since the first establishment of the medical schools, the field of medical science has changed its entire aspect. The new departments that have been developed, exceed in extent, and equal in importance, the rudimentary branches forming the original scheme of medical education. They embrace what may correctly be designated the higher and scientific branches of medicine.

To include them with the original courses, in lectures of four months' duration, is wholly impossible. The question, therefore, resolves itself into this simple proposition—Shall the medical education of the schools of this country be restricted to the original rudimentary branches of medicine, laying aside the modern and scientific departments; or the course of lectures be prolonged, for the gradual introduction of them, into the instruction of the schools?

But laying aside all considerations of new courses of lectures, in the present state of medical science indispensable to every sound scheme of instruction, it is unhesitatingly affirmed, that four months are insufficient for the lecturers to treat in full the subjects even of the present courses taught in the schools.

There is not a single branch whose expansion, by the amount of new matter infused into it, from the improvements, discoveries, and more enlarged views of the last thirty years, has not rendered the time appropriated to the lectures wholly inadequate. There is not a course at present delivered in the schools, in which subjects of importance are not omitted, slurred over, or superficially treated from lack of time. This report is already too extended, or it would be easy to show, by a review of each branch, the correctness of the above statement.

There is one, however, the leading department, that of the theory and practice of medicine, which may be adduced in evidence. No one will pretend that this subject could, by any possibility, be satisfactorily taught in a course of four months. Six months of lectures, for two years, and four times a-week, would barely suffice to go over the ground once. But clinical teaching has been made, by its higher perfection in modern times, the most important part of instruction in the practice, and illustrative of the didactic course. Its importance cannot be overrated, or expressed in terms too warm. No medical education can be complete without it. It is useless to ex-

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hibit the incompatibility of these courses, and the four months term.

The question, we repeat it, is narrowed to this point: either the term must be lengthened, or all hope of improvement in the profession and science of our country be abandoned. Having made this statement, somewhat in full, of the broad grounds on which the decision of the Association was based, in recommending the extension of the scholastic term of lectures to six months, the committee have performed the purpose of their appointment. But they cannot close this report, and they believe it will be no infringement of their duty, without some notice of the general position assumed in the communication of the medical department of Harvard University. The object of that paper is to show, that "the only method which can effect the purpose intended by the Association, is private instruction, by examinations, by recitations from books, and, in the demonstrative branches, by demonstrations on the part of the student." In order to sustain this assertion, public lectures are underrated. It is asserted that, in medical education, "they constitute a subordinate and subsidiary part."

It is not necessary, at this day, to vindicate the value of public lectures as means of instruction. That is too firmly established by the experience of ages, and is demonstrated daily in the great schools of Europe. It cannot be weakened by suggestions of this kind. A well-digested plan of lectures embraces all that is to be known and taught. A complete course of lectures, on any branch, is the summary of the whole of that branch; nothing is omitted. The student is initiated into the knowledge of medicine as it is; he begins his study at the point it has reached at his time. It does not follow that students, attending on lectures, do not apply personally to self-instruction. Observation and experience prove, that, excited by oral addresses, they are ardent in the pursuit of knowledge, and are the hardest readers. The objection of the Harvard University may apply to the present lectures of our schools; for it is admitted they are imperfect; and a principal element of that imperfection is, the shortness of the term, which absolutely prevents a complete course of lectures. It is to remedy this defect, the first on the list for reformation, that the Association has been so strenuous in its efforts to lengthen the term. It would have been, it appears to us, a more logical conclusion in the Harvard University, to have sustained the Association in this measure. "The active, practical discipline of the mind," regarded of so much consequence by

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the Harvard University, is most certainly attained by the student in attendance on lectures. The student, in them, is presented with the example of methods of investigation, of mental analysis, of critical research and logical deduction. The mind is carried along with the lecturer, and acquires the habit of rational inquiry, and of resolving abstruse and difficult problems.

It is one of the most serious defects of our present system, that, from the shortness of the scholastic course, the student does not remain in the schools a sufficient time to imbibe the spirit, and to be disciplined in the methods, of scientific research and philosophical investigation. The whole scholastic period is eight months; four in a year, with an interval of eight months. How is it possible, that a disciplining and training of the mind could be accomplished by courses so widely separated, and so brief? We have, in this important view of medical education, additional motives and inducements for extending the term of the lectures, and prolonging the period of attendance on the schools.

In the plan of the Harvard University, the proper order is reversed. Private education is secondary and subsidiary to the public lectures. Good private teachers serve to check the public lecturers, and compel them to keep posted up with the knowledge of the time; they supply what omissions may occur in the lectures, and correct the inaccuracies of the student. In Philadelphia, this plan has been for many years in existence. There are several associations of private teachers, with numerous classes of students, whose influence on the medical instruction of Philadelphia has been highly beneficial.

The scheme of instruction recommended, in the view we take of it, is not consonant to the genius of medical science. Medicine is not a completed science; it does not consist in permanent axioms, in established formularies, in positive manipulations, of parts always persistent, and principles that are unchangeable. Medicine is in progress; its facts are all under investigation, its principles are being solved, its doctrine unsifted, its practice fluctuating, and to be adapted to all the diversities and dissimilarities of cases and patients. The phenomena of life, in health and disease, must ever be a fluctuating element; and every case of disease must necessarily form a problem involving this changeable element, requiring for it correct treatment, extensive knowledge, mental combination, and critical analysis.

In the miserable abortion of homœopathy, it is assumed that, for

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every symptom, there is a specific remedy. It requires for its practice, neither knowledge, science, nor intelligence; for its acquisition, no other labour than examinations and recitations from books. Not so with medicine; "examinations and recitations from books" may assist students to graduate, and to make the doctor; but can never produce the physician. There is great danger that such a course of education will form mere routinists, and inclose the mind in a narrow and vicious circle of ideas.

The student should be taught to distrust authorities, and to be suspicious of facts, until both are confirmed and reconfirmed by numerous observations. His best book and truest authority is nature. The object of his training and culture should be, to enable him to interrogate her for facts; and to interpret her facts aright. It is wiser and better to adhere to the system of teaching approved by the experience of past ages, and so modified in our own time as to be adapted to the enlarged area of modern knowledge, than to enter on an untried experiment. The system of oral instruction has conducted medicine to its present stage of progressive advancement, and gives the strongest indications that, in no distant future, it will elevate it to the rank of a developed science, and a profound philosophy.

SAMUEL JACKSON,
JOHN L. ATLEE,
ALFRED STILLÉ.

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F.

REPORT OF THE

COMMITTEE ON MEDICAL LITERATURE.

THE field of labour assigned to the Committee on Medical Literature is wide and fertile. We shall endeavour to traverse this wide field, and gather from its fertile soil some of the most important productions with which it is enriched. Six distinct subjects, subordinate to the main design, claim our consideration. We shall take them up in the order in which they are laid down by the regulation creating this committee, and discuss them with as much brevity as their copiousness and importance will permit.

These six distinct subjects are: 1st. The general character of the periodical medical publications of the United States; 2d. The more important articles therein presented to the profession; 3d. Original American medical publications; 4th. Medical compilations and compends by American writers; 5th. American reprints of foreign medical works; and, 6th. All such measures as may be deemed advisable for encouraging and maintaining a national literature of our own.

I. GENERAL CHARACTER OF THE PERIODICAL MEDICAL PUBLICATIONS OF THE UNITED STATES.

In reflecting *on the general character of our Periodical Medical Literature*, four interesting points are presented for our consideration. First, the intimate alliance which it holds with our medical schools; 2d, the generous devotion to the science of medicine, and to the well-being of the profession, which it evinces; 3d, its abundance; and, 4th, its cheapness.

The great majority of the medical journals of the United States have sprung from the urgent determination on the part of the most energetic of the professors of the medical schools, to spare no efforts to promote that cause which they hold so dear. Some of our most

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distinguished journals have passed into as able hands as those which first held the editorial pen, but it is but an act of justice to hold in remembrance the paternity of these offspring of a high and enlightened regard for the best interests of the medical profession.

The present aspect presented by medical journalism in our country, is full of auspicious omens of the future progress of medical science. The first minds of the profession are engaged, both in their editorial management, and in the making up their original and review matter. A wise and liberal spirit, generally, pervades and animates the editorship. No personal abuse or vindictive feelings are allowed to stain their pages, and disparage the dignity of the science, to the promotion of which they are devoted. Amid our keen political agitations, it is delightful to have a retreat from the angry voice of partisanship, where its clamours reach not our ears, and there ever smiles on the inquiring mind the mild radiance of truth.

A generous devotion to the cause of medical science is amply illustrated in our medical periodicals. There are very few of these journals which yield any compensation, other than the rich luxury of doing something to advance the noblest earthly ends, to the medical practitioners who edit them. On the contrary, the editorship of a medical journal has, in many instances, damaged to a considerable extent, instead of benefiting, the pecuniary resources of the editor. And yet they multiply within our borders, because the medical profession is on the advance, and because the ardent cultivators of medical science in this country prefer the glory of their noble and humane calling, to rewards of a merely merchantable value.

The medical periodical literature of the United States is very abundant. At present, there are twenty original, or native, and four foreign, or republished, medical journals, which have a wide circulation in this country. Each journal does not penetrate all parts of the country—for some, perhaps the majority of them, have a comparatively limited circulation. There are a few, both among the native and foreign, which go to all portions of our common land. Of the native medical journals of the United States, five are quarterly publications, viz.: the *American Journal of Medical Sciences*, the *New Jersey Medical Reporter*, the *American Journal of Insanity*, the *Retrospect of American Practical Medicine*, and the *American Journal of Pharmacy*. Six are bi-monthly, viz.: the *St. Louis Medical and Surgical Journal*, the *North-western Medical and Sur-*

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gical Journal, the *Charleston Medical Journal and Review*, the *Ohio Medical and Surgical Journal*, the *New York Journal of Medicine*, and the *New Orleans Medical and Surgical Journal*. Six are monthly, viz.: the *Western Journal of Medicine*, the *Buffalo Medical Journal*, the *Medical Examiner*, the *Southern Medical and Surgical Journal*, the *Western Lancet*, and the *Medical News and Library;* the *Boston Medical and Surgical Journal* is weekly, and the *Annalist* semi-monthly; whilst one, which we class under the head of our periodical literature with, perhaps, a doubtful propriety to some minds, has been issued thrice during the year,—that is, the *Transactions of the Philadelphia College of Physicians*.

Besides, we might include the annual reports of our different Lunatic Asylums, as partaking of a periodical character.

An immense number of copies of the above-named medical periodicals are issued every year, and, with the reduction of the postage which has taken place within a short period, they are spread, through our numerous post-offices, from east to west, from the Atlantic to the Pacific, throughout the wide territory which we inhabit.

The cheapness of these periodical publications greatly favours their wide diffusion. Our oldest and best established medical periodical, the *American Journal*, with its *Medical News and Library*, costs five dollars, for which sum the reader is furnished during the year with about fourteen hundred pages of sound matter. The *Medical Examiner*, for three dollars, gives its subscribers near nine hundred pages of good reading. The *New York Journal of Medicine* presents the same inducement of cheapness as the other two, and is equally entitled to praise for the judiciousness and ability with which it is conducted. The *Ohio Medical and Surgical Journal*, published in Columbus, for two dollars annually, affords its patrons near six hundred pages of instructive matter. *The Boston Medical and Surgical Journal* presents, in its two volumes, published within the year, more than a thousand pages; which are to be had for three dollars. This well-conducted journal has long maintained its present high position.

The Western Journal of Medicine and Surgery, of Louisville, Ky., *The Charleston Medical Journal and Review*, *The St. Louis Medical and Surgical Journal*, *The North-Western Medical and Surgical Journal*, of Chicago and Indianapolis, *The Southern Medical and Surgical Journal*, of Augusta, and the others before enumerated, are each of them possessed of the recommendatory

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quality of cheapness, as well as the more essential attractiveness of scientific excellence.

The foreign, or republished medical journals, partake, to a still greater degree than do our original, or native periodicals, of this economical feature. Thus the *London Lancet*, which is printed in this country in small type, and in double columns, for five dollars a year, contains about a thousand pages in its two annual volumes. *The British and Foreign Medico-Chirurgical Review*, is now republished for three dollars a year, and *Braithwaite's Retrospect*, and *Ranking's Abstract*, at seventy-five cents each, per number.

II. THE MORE IMPORTANT ARTICLES PRESENTED IN OUR PERIODICAL MEDICAL LITERATURE TO THE NOTICE OF THE PROFESSION.

Our remarks will be circumscribed within the year which has elapsed since the last annual report of the Committee on Medical Literature. We shall distribute, for a more comprehensive and lucid enumeration of the most prominent articles which have appeared in our medical journals within the last twelve months, these contributions under twelve heads. 1. Anatomy and Physiology. 2. Chemistry and Pharmacy. 3. Surgery. 4. Materia Medica and Therapeutics. 5. Midwifery, and Diseases of Women and Children. 6. General Pathology. 7. Practice of Medicine. 8. Medical Biography. 9. Empiricism. 10. Medical Education. 11. Vital Statistics. 12. Medical Topography.

1. *Anatomy and Physiology.*

In the *New Orleans Journal*, there are the following separate articles devoted to the consideration of physiological subjects. In the July number, for 1848, Dr. B. Dowler, in an elaborate review of Solly on the Brain, controverts Marshall Hall's favourite and now generally adopted theory of Excito-motory Action, and successfully points out some errors into which Mr. Solly has fallen in Comparative Cerebral Anatomy. This paper reflects additional honour on Dr. Dowler's professional zeal and scientific research. In the September number of the same journal, an interesting case of Superfœtation and mixed birth is related by Dr. Thomas B. Taylor. The perplexed question of Superfœtation, Dr. Taylor regards as having received, in this instance, an unequivocal affirmative reply. The woman, a negress, was confident, from her experience of former

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pregnancies, that she had conceived by her husband three weeks anterior to a single connection with a white man. She gave birth to two children, nine months subsequent to the date of her calculated impregnation by the negro husband, one of which was black, and the other a mulatto. But it is obvious that two sources of ambiguity are present in such a case, to cast doubt on all speculative conclusions which may be deduced from the premises. First. Supposing that she was impregnated, in due matrimonial method, at the period of her confident belief of such an event, yet the vivified ovum may not have reached the uterus before another vitalized Graafian vesicle, set, perhaps, into quick motion by the new act of impregnation, may have commenced its march, and passed with accelerated pace into the uterine cavity. Or the woman may have been mistaken in her reckoning, and thus no real superfœtation did take place. In the January number of the same journal, we have two papers of a physiological kind. Dr. W. P. Hart has written well on Instinct and Reason, and Dr. Sowler has, with his accustomed ability, treated the subject of Capillary Circulation.

The last April number of the *Southern Journal*, contains three short papers which belong to this head. One, entitled Malformation of the Genito-urinary Apparatus, by Professor Dugas; another, On the Properties of Saliva, and its use in Digestion, by Dr. Juriah Harris; and the third, with the title of New Views of the Physiology of Digestion, from a Paris correspondent. The first mentioned is a judicious exposition of an anatomical malformation, the last two are rather too deeply imbued with the current chemical excogitations of the day.

Professor Blake, in the September and October numbers of the *St. Louis Journal*, has given the profession two short articles, one on the Abnormal Distribution of the Thyroid Arteries, and the other on Heart Entozoa. There is a want of accurate fulness of description in the latter paper, which the author says is owing to the fact, that he lost the specimen containing the entozoa, which were in the heart of a healthy dog, by the rats. The prolific and able pen of Prof. Paine has given us, in several of the October numbers of the *Boston Journal*, some brief physiological contributions.

In the *St. Louis Journal*, for July and August, under the head of the Seat of Intellect in Man, Dr. C. L. Boisliniere has speculated very ingeniously on the higher points involved in the great mystery of cerebral physiology; but after all which anatomy and philosophy

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can summon, to enlighten us on these much-agitated questions, no positive conclusions can be reached, unless we carefully treasure up the results of an accurate and wide induction of facts, furnished by pathological observation. And, to an authority superior to human wisdom we must go, to have the enigmas of man's psychological nature solved, which anatomy and physiology have long proved themselves incompetent to explain.

The most important contribution to be found in our periodical medical literature within the past year, on the subjects embraced under this head, is that of Dr. Joseph Leidy, On the Intimate Structure and History of the Articular Cartilages, contained in the April number of the *American Journal.* Accompanying the article are two plates, which exhibit the minute structure of articular cartilages. This gentleman is already widely and favourably known for his article On the Comparative Structure of the Liver, noticed in the last Annual Report.

2. *Chemistry and Pharmacy.*

Under this head, the matter to be found in our periodical medical literature for the past year can be stated in a few words.

Prof. Means has written an outline of the Past History and Present Condition of the Science of Chemistry, which is contained in the March number of the *Southern Journal.*

Dr. A. Hitchcock, in the *Boston Journal,* Jan. 17, 1849, gives a brief synopsis of a late trial at Worcester, for murder, alleged to have been committed fifteen years ago, by a man whose victim was his own wife. For several years after burial, the body continued in an unusual state of preservation, and "ten years after death, the sexton of the graveyard, a very intelligent man, testified that he could have identified the body by the *features alone*, while other bodies, interred afterwards, were totally decayed." From the remains of the woman, Prof. Webster obtained, by the usual methods of analysis, a little more than four grains of oxide of arsenic. Prof. Webster thinks that the popular notion of the antiseptic power of arsenic, does not appear fully sustained. Seeman's experiments upon dogs, show that their bodies putrefied as usual. "It is probable," says Prof. W., "that the antiseptic power of arsenic has been much over-estimated. Still, there can be no doubt that arsenious acid combines with the fatty and albuminous tissues, and forms compounds

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which are not susceptible of alteration under ordinary circumstances."

Dr. B. H. Rand, in the *Philadelphia Examiner*, September last, communicates some valuable suggestions and facts in reference to the antidotal power of animal charcoal. Most, if not all, known vegetable and animal poisonous principles, and certain mineral poisons, can be withdrawn from their solutions by this antidote.

In the last July number of the *American Journal*, Dr. Emory Bissel relates a case of poisoning by arsenic successfully treated with calcined magnesia.

In the *Journal of Pharmacy*, published by authority of the Philadelphia College of Pharmacy, there are very encouraging evidences given of the rapid advancement of this branch of medicine in our country. In the July number of 1848, there is an excellent description given, accompanied by a plate, of the botanical character, sensible and chemical qualities, and pharmaceutic preparations of the Helleborus Niger, by Dr. Joseph Carson. In the October number, the same distinguished gentleman has given an account of the Quassia Amara, illustrated by a plate. In the same number, there is an instructive paper from W. P., Jr., on the Progress of Pharmacy in Great Britain.

In the January number, R. H. Stahler communicates his mode of making certain pharmaceutical preparations, such as iodide of potassium, liquor ferri iodidi, and tinctures.

3. *Surgery.*

In this department, our medical periodicals are abundant in materials of a most useful and varied character. We shall introduce to the notice of the Association, the most prominent of the surgical articles, by a distinct citation of their most interesting features.

The *American Journal of Medical Sciences* contains the following. Dr. M. G. Delaney, Surgeon U. S. Navy, in his Surgical Cases, reported to the Bureau of Medicine and Surgery, in the October number, relates some very important operations; such as thigh amputation, castration of enlarged testicle, and excision of the tongue for congenital glossocele.

In the July number, there is a very valuable paper by Dr. H. W. Buel, entitled Statistics of Amputations in the New York Hospital, from January 1st, 1839, to January 1st, 1848. Within the period

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of nine years, the whole number of amputations amounted to ninety-one, of which twenty-six were fatal; making the mortality 28.57 per cent. Of amputations at the hip-joint, there was one, and that fatal. Of amputations of the thigh, there were thirty-four, of which ten were fatal. At the knee-joint, there was one amputation, and that fatal. Of amputations of the leg, there were twenty-four, of which seven were fatal. Of those at the shoulder-joint, nine, four of which were fatal. Of the arm, eleven, of which none were fatal. Of the forearm, thirteen, of which three were fatal. Of the above enumerated sixty amputations of the lower extremity, nineteen were fatal; making the mortality 31.66 per cent. While, of thirty-three amputations of the upper extremity, seven were fatal, making the mortality 21.21 per cent.

Prof. Atlee, in the same number of the *American Journal*, relates an interesting case of Excision of the Cervix Uteri; the operation was well performed, but the woman died.

Also, in the same, Dr. J. M. Warren gives a case of successful operation for Artificial Anus.

Prof. Gross, so highly distinguished as a pathological anatomist and scientific surgeon, in separate articles in the same number, presents us with a new operation for the Radical Cure of Variocele, and also a successful case of Disarticulation of the Lower Jaw, in which operation one-half of the lower jaw was removed.

An instructive case of Ligature of left Subclavian Artery for Subclavian Aneurism, with a remarkable deviation of the vessel and consequent change of its relations, is given in the January number, by Dr. J. M. Warren, assistant surgeon. Dr. Ed. R. Squibb, of the U. S. Navy, suggests some valuable views in reference to the Advantages of Simple Dressings in Surgery. And in the same number, Dr. A. M. Blanton relates the case of a Gun-Shot Wound of the Chest, in which, after the infliction of the injury, at the battle of Buena Vista, the man lived six months, with a bell-metal ball of four and a half ounces, in the left cavity of the thorax.

Dr. George Fox, one of the surgeons of the Pennsylvania Hospital, makes a Report of Cases treated in that institution. These cases are well narrated, and the report of them evinces tact in seizing the most important points of the cases, and an analytic mind, capable of deducing practical instruction from what is submitted to its observation.

A short, but very valuable letter from Dr. Richard McSherry, Surgeon U. S. Navy, is published in the same number, in which,

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he states, as regards the successful issue of the treatment of limbs affected by gun-shot wounds, during the Mexican campaign, that cures after severe injuries of the knee or thigh were very rare indeed; so much so, that he did not see a single one, in his own practice, or that of any other surgeon, whether amputation was performed or not. This gentleman assures us that, "while most formidable injuries of the thigh, or more particularly of the hip or knee, make the case *hopeless*, without amputation, yet that, in most cases, the patient would stand as good a chance of recovery with his leg as without it; and, therefore, we adopt the better policy by attempting to save, at once, his life and his limb.

The *Buffalo Journal* contains, in the July number, Prof. Hamilton's Report of Surgical Cases, which evinces talent and zeal coincident to the uniform professional course of that eminent physician. He has, in the last April number, drawn, from his own observation, and other sources of information, Fracture Tables, showing the results of treatment in one hundred and thirty-six cases. From these tables we learn, that, in more than half the cases, an imperfection of the broken bone was the result.

And in the October and January last numbers of the same journal, that gentleman has related Plastic Operations, and Rhinoplasty, as performed by himself, which give additional renown to his character as an able surgeon.

Professor Eve, in the *Southern Journal*, in the July, November, December, and January numbers, has communicated the following cases of Operative Surgery—Lithotomy—Successful Amputation at the Shoulder-joint—patient under chloroform.—Operations on the Jaws, with the results of fourteen cases, and four minor operations of the first day's clinic in the Medical College of Georgia. An elevated position in our profession has been won by this accomplished surgeon.

In the *Western Journal*, of July, Professor Miller gives a case of successful extirpation of a right Ovarian Tumour, weighing nine and a-half pounds. In the *Western Lancet*, of October, Dr. P. J. Buchner, has related a case of Ovariotomy, in which the tumour weighed twenty-eight and a-half pounds,—this proved, also, a successful operation.

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The first number of the Ohio *Medical and Surgical Journal*, presents us with a paper from Professor Howard, on Lithotomy in the Female. Accompanying the article, is a plate of the urethral dilator, contrived by the author. It is an article evincive of sound judgment, and practical skill.

In the same number, Professor Judkins gives a case of Inflammation and Sloughing of the Rectum, which presented some very singular phenomena.

Dr. M. Z. Kreider, in the second number, gives interesting extracts from his Surgical Case Book; such as Resection of the Lower Jaw, and of Aneurism of the Epigastric Artery.

In the *Boston Journal*, February 7, 1849, Dr. Henry J. Bigelow has made known his Employment of a New Agent in the Treatment of Strictures of the Urethra,—with an engraving. "This method consists," in the words of the author, "in the use of gutta-percha, in taking the impression of a stricture;" he also avails himself of the plasticity of this gum in dilating the stricture. A useful paper.

Contained in the Extracts from the Reports of the New York Pathological Society, published in last January number of the *New York Journal*, we have Remarks on Aneurisms of Aorta, originating near the Heart, by Dr. S. M. Markoe; Adhesion of Lips of Os Uteri, and Abscess of the Cervix, from Injury by Instruments during Labour, by Dr. James Crane; case of Inflammation of the Portal Vein, by Dr. Israel Moses; case of Spina Bifida, terminating in Rupture of the Tumour—death three days afterwards, by Dr. A. G. Elliott; case of Extra-Uterine Pregnancy, by Professor Watts; case of Scirrhus of the Uterus, by Professor Clark; case of Carcinoma of the Stomach, by Professor Parker; case of Calculus in the Bladder, death from exhaustion, by Dr. W. H. Van Buren; and a case of Atelectasis, by Dr. G. A. Sabine. These contributions to medical science reflect honour on the society, the members of which afford such evidence of their professional earnestness.

The North Western Journal contains a number of interesting short articles on surgical subjects. In the June and July numbers, Dr. E. G. Meade has written a judicious paper on Purulent Ophthalmia. In the same number, there is a brief discussion, by Dr. L. Dunlap, of Hydrocele, and a case of Reduction of an Old Dislocation of the Humerus. In the August and September numbers, Professor Brainard

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has communicated a case of Ununited Fracture of the Femur of one year's standing, successfully treated by resection, denudation, and retaining the ends of the bone by means of wire.

In the October and November numbers, Dr. E. W. Mears gives some sensible practical remarks on Hernia Cerebri. Report of a case of Inflammation of the Fauces and Glottis, resulting in complete Obstruction of Respiration; Tracheotomy Successfully Performed, is given by Dr. J. B. Herrick in the December and January numbers; and, in the same, Dr. James Whitemire has made known to the profession that he has discovered a certain antidote to the venom of the rattlesnake, in iodine. An alcoholic solution, the strength not stated, is to be applied to the bitten part, and to the whole tumefied surface. The doctor says that he has had numerous cases of this kind, all of which were cured by the remedy. Rattlesnakes, no doubt, abound in the vicinity of Metamora, Ill., where the gentleman resides.

Dr. W. S. Wragg, *Charleston Journal*, November, 1848, has communicated many sound practical thoughts in his paper, On the Use of Sutures in Surgery, and on their advantages over adhesive straps and other modes for producing coaptation of the edges of wounds.

In the *Western Lancet*, for May, 1848, Dr. Wm. Davidson states the happy issue of a case of Tracheotomy, performed for the removal of a grain of corn from the glottis. Dr. Wm. H. Byford, in the same number, relates the case of a woman now pregnant a third time, but who experienced no difficulty in her first labour, and in her second, though severe, there was no need of artificial aid, but upon whom it was found necessary to perform the Cæsarian section. This necessity arose from the presence of an osseous tumour growing on the plane and tuberosity of the ischium, nearly filling up the pelvis. The operation, though well performed, failed of success.

In the same number, there is a case given by Dr. G. V. Dorsey, of Resection of the Os Femoris, for an improperly treated fracture, in which complete success crowned the well-conducted treatment by that gentleman.

In the same periodical for August, Dr. P. J. Buckner has furnished a very singular case of severe injury of the head, in which there was an extensive fracture of the os frontis, with considerable loss of brain. The patient was fifteen years of age when he received the injury, and survived the accident fifteen years. After death, it

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was found, by that diligent and distinguished physician, that an organized matter, or a white pulpy mass, of rather fibrous texture, two inches long, one and a half inches wide, and one in depth, occupied the right half of the frontal sinus; the orbital process of the os frontis, and cribriform plate of the same bone were gone.

Dr. N. H. Cheseborough, *New York Journal*, September number, has offered a Summary of Observations on Syphilis in Infants, which presents a concise and accurate view of its history, symptomatology, causes, and treatment.

4. *Materia Medica and Therapeutics.*

Under this head there are offered some valuable contributions to the cause of medical science, in our medical journals of the past year. Among the most important of these we have selected the following as most worthy of separate notice.

Dr. G. W. Jones, in the *American Journal* for October, has given extracts from his inaugural thesis—An Experimental Inquiry into the correctness of M. Poisseuille's Explanation of the Purgative Action of certain Substances—which controvert and refute the endosmotic hypothesis in reference to the *modus operandi* of cathartics.

Contained in the same number, is Dr. S. Kneeland, Jr.'s, valuable Suggestions on the Use of Warm and Vapour Baths.

A very appropriate and luminous paper by Professor John C. Warren, on the Effects of Chloroform as a Narcotic Agent, is to be found in the last April number of the *Americal Journal*. This very eminent physician and surgeon, with that caution which should possess the mind and control the practice of every medical practitioner in the use of toxic agents, has pronounced decidedly his opinion, that the loss of a single life, from an application made for preventing pain, should make a strong impression on the mind of any conscientious practitioner; and that when, from the frequency of such a fatal result, a well-grounded apprehension is entertained of a similar occurrence, he should either relinquish the practice, or find out some way of rendering it safe. Chloroformization is full of solemn warning; it is replete with danger; no less than nine well-authenticated fatal cases have become known within a year. Chloric ether is safe, and, therefore, Dr. Warren gives it the decided preference.

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Professor R. D. Mussey, in his brief Report upon Ether and Chloroform, made to the last Ohio Medical Convention, and published in the proceedings, May 1848, declares his preference of the latter agent to the former. That scientific and skilful surgeon says that he has never witnessed unpleasant or injurious results from the inhalation of chloroform.

In the *Southern Journal*, for January, 1849, there is a very superior article headed Experimental Researches on the Febrifuge Properties of the Extract of Dogwood Bark and Cornine, obtained (with cases) by D. C. O'Keefe, Student of Medicine, Augusta, Ga. It is an inaugural thesis, and reflects the highest credit on the author's industry and intelligence. The modes of preparation of the extract and of cornine, are given, and the therapeutic application well laid down. In the same journal for July, there are two papers, one on quinine, and the other on crude mercury, which are recommended to our notice by their intrinsic merits.

Dr. James C. Harris, of Wetumpka, Ala., has an article entitled Thoughts on the Modus Operandi and Therapeutic Properties of Quinine, in which he justly and emphatically pronounces that quinine is a *stimulant and anti-periodic*, and anti-malarian. And if it ever manifests very clearly any other action, it is either owing to idiosyncrasy, or to its having been given in unnecessary, if not dangerously large doses.

Dr. Henry H. Meals gives us, in the same number, An Essay on the Applicability of Crude Mercury to Ileus, and its kindred affections, with cases. He has used the remedy successfully in fifteen cases, and exhibited it in half-ounce to one-ounce doses, every few hours, till, in some instances, two pounds were taken.

In the same journal, for April, 1849, Dr. E. H. Oakman has a paper on the Therapeutic Action of Quinine, in which he avows his belief that the mode of agency of this great anti-periodic is neither sedative nor stimulant, but anti-malarious.

Remarks on the true Value of Mercury in the Treatment of Malarial Fevers, is the title of a paper from Dr. J. A. Mayes, in the March number of the journal above cited. A moderate use of mercury is recommended, rather to remove the effects of febrile action, than to fulfil any indication during the orgasm of the disease.

In the *New Orleans Journal*, for July, there are two papers on Quinine, the first by Dr. Wm. A. Booth, of La., and the other by

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Dr. Lewis Shanks, of Tenn. These papers strikingly evince the opposite views yet entertained by our southern brethren on the *modus operandi* of this great agent. Agreeably to our long entertained opinion, Dr. Booth has correctly stated the true mode of action of the remedy. He says, that the anti-periodic and anti-congestive powers are associated with a tonic or stimulant property. Dr. Shanks prescribes quinine in large doses in puerperal peritonitis and other inflammatory diseases, and contends that, in well-established congestive fever, with the enervation of the system which causes and accompanies it, the remedy is not beneficial; but, when given in large and repeated doses, it exerts a decidedly depressing and injurious influence.

In the *Western Lancet*, of last September, Dr. G. Mendenhall, a very enlightened practitioner of Cincinnati, has published his views of the Physiological Properties of the Sulphate of Quinine. After stating the discrepant opinions entertained and promulgated on the action of this agent, and having cited his own experiments, he thus expresses himself: "We are, therefore, brought irresistibly to the conclusion that, although quinine has powers peculiar to itself, and which cannot be fully explained, yet that one of its most obvious effects is an increase of the vital properties of the system as a primary effect, and that it is entitled to the appellation of a stimulant."

In the same number, we have an excellent article from Dr. S. M. Tweed, on the Abuse of Purgative Medicines in Typhoid Fever. In the October number, a short paper, from Dr. J. S. Unzicker, on Chinoidine, in which this substance is proposed as a substitute for quinine. In the November number, is an examination of the question—Is it necessary to salivate, in order to save a patient, in any form of disease? by Dr. John P. Harrison. This question is answered affirmatively, but the author has endeavoured to guard his statements of the anti-febrile and anti-inflammatory powers of mercury as a constitutional agent, by restricting this necessity to a comparatively few forms of severe morbid action.

In the number for last February, Dr. J. G. Chinn has published several cases of severe vomiting, in which he found the acetate of lead of decided utility; and in the April number, Dr. J. W. Mighels has given a very favourable account of the remedial influence exerted by chloroform, internally exhibited, in Asiatic cholera. Dr. C. S. Muscroft, in the March number, has stated the results of his experience in the use of the Extract of the Cannabis Indica, in

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certain Spasmodic Affections. In the March number, Dr. H. G. Carey, acting Resident Physician of the Cincinnati Hospital, makes known the benefits which he has seen to arise from the deodourizing quality of the Nitrate of Lead. "Le Doyen's disinfecting fluid," he says, "contains the materials for half a pound of the nitrate of lead to a gallon of water. These materials are litharge and nitric acid, which, added to the water, in their proper relative proportions, constitute the solution."

In the *New York Journal*, for March, 1849, Dr. H. N. Bennett has published Remarks upon the Use of Antimony (tart. ant. et pot.) in the Pneumonia and Bronchitis of Children. The suggestions are generally judicious, though the recommendation of the remedy as a means of combatting the diseases of early life, we conceive rather too liberal.

The *Charleston Journal*, for January, 1849, contains a paper from Dr. Porcher, On the Medicinal and Chemical properties of Sarracenia Flava and Variolaris—the Side-saddle flower, or Fly traps. The author considers the plant as a valuable curative article. It is antacid, astringent, aperient, tonic, and narcotic. The following sentence expresses what we must regard as erroneous medical philosophy. "That the sarracenia is capable of fulfilling certain indications, it matters not what they are, we need not be surprised, when we remember that narcotic poisons, datura stramonium, cicuta maculata, and solanum nigrum, are common to the same localities." Now it is generally conceded by the profession that it is of the most essential consequence to know the indication to be fulfilled before we prescribe, and that, to administer a remedy without a well-defined indication, is rather a hazardous practice. And as to determining the medicinal virtues of a plant by its habitat, that is scarcely a warrantable procedure.

Professor Yandell, in the *Western Journal*, for May, 1849, has written a very good article on the Progress of Etherization. It embraces the history and present state of professional information on the subject, and is accurately drawn up.

The vexed question of the Action of Medicines is ably discussed by Professor Blake, in the May and June numbers of the *St. Louis Journal*. After all said by the learned gentleman, however, the

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matter remains an almost *terra incognita*. For he acknowledges that "the existence of the changes in the blood are indicated by the phenomena which they produce in the living organism," and that, moreover, "substances introduced into the blood induce different results from their action in the stomach."

The *Charleston Journal*, May 1848, has a paper by Dr. Flagg, On Iodide of Potassium in Tertiary Syphilis. In the same number, are Observations on Styllingia Sylvatica, by Dr. T. G. Simons. This plant, in South Carolina, goes by the name of "Queen's Delight," and has long been used among many of the country people in cases of long-continued syphilis. Upwards of twenty years the author of the paper has used this plant, and he has found it the best vegetable alterative. The extract of styllingia, in five-grain doses, is a good substitute for the blue pill. Also, in the September number, one On the Properties and Uses of the Eupatoria, by Dr. Johnson, and, in the November number, Dr. Ravenel has given his views of the Advantages of a Sea-shore Residence in the Treatment of certain Diseases, and on the Therapeutic Employment of Sea-water. These articles are brief, but quite satisfactory, and indicate judgment on the part of the writers.

The June number of the *Medical Examiner*, has an explanatory paper of Prof. Lindley, On Etherization. In the last December number, there is a letter from Dr. R. L. Scragg, of Tenn., On the Use of the Sulphate of Quinine. The views of this gentleman are, in reference to the action of quinine, that it is atonic, that "it should never be given upon a rising fever," but only when the fever has a downward tendency.

In the last April's *Examiner*, there is a defensive article from Prof. Simpson, in reply to Prof. Meigs, On the Use of Anæsthesia in Midwifery.

5. *Midwifery, and Diseases of Women and Children.*

The most elaborate articles on the subjects comprised within this head, are to be found in the *Transactions of the College of Physicians of Philadelphia.* The Annual Report On the Diseases of Children, made by Dr. Condie, and that On Midwifery, by Dr. Griscom, are replete with valuable information.

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Dr. J. H. Sherman, in the September and January numbers of the *New York Journal*, has published some judicious reflections On Milk Fever, and Abscess of the Mamma, and On the Period of Lactation, and its Connection with Subsequent Pregnancy.

In the Proceedings of the Annual Convention of the *Connecticut Medical Society*, there is a paper of superior merit, On some Forms of Disease of the Cervix Uteri. The subject is thoroughly explored, and much sound practical information communicated in that article.

Dr. Thomas E. Massey, *Ohio Journal*, September, 1848, has communicated his views of Inflammation and its Sequelæ, Engorgement, Ulceration, and Induration of the Os and Cervix Uteri in the Unmarried. In this well-written paper, the author has made a suggestion which is not supported by our experience of thirty years in the west. "That, in fact," says he, "it is by no means an uncommon origin of ill-health in the young female, I have had ample demonstration. But the thought has at times struck me, that its existence was more frequent in our western country than elsewhere." According to our observations, inflammation of the cervix uteri, with its sequelæ, in the unmarried female, is a very rare affection; and we are persuaded that in the west there is as much exemption from it as elsewhere.

Dr. J. D. Trask, in the July number of the *American Journal*, has presented us with a detailed statement of sixty-eight cases of Occlusion and Rigidity of the Os Uteri and Vagina. The article is further illustrative of the professional assiduity, and extensive research of its eminent author.

Dr. J. Marion Sims, of Ala., in the same number, again brings forward his Occipital Theory of the Pathology of Trismus Nascentium, which he enforces by additional facts and reasoning.

In the *Charleston Journal*, for November, there is a short article by Dr. R. S. Bailey, on Trismus Nascentium, in which he expresses his dissent from Dr. Sims's theory, and says that he is inclined to believe that the disease arises from the causes that originate traumatic tetanus, and always depends on some injury sustained. The treatment should be like that prosecuted in traumatic tetanus.

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In the August number of the *Southern Journal*, are Dr. W. P. Parker's Remarks on Labour obstructed by Tumours, with cases. Several very interesting cases are stated; the practical deductions drawn from them are indicative of a just consideration of their nature and method of treatment.

The *Ohio Journal*, January number, contains several meritorious contributions on Diseases of Children. One, by Dr. E. C. Bidwell, on Hydrencephaloid Disease, and another on Cyanosis, by Dr. J. C. Vattier. Both of these articles are marked by clearness, and do credit to their authors.

Dr. J. Byrd Smith, in the same number, has an article on the Manual Delivery of the Placenta, which is well written, and affords proof of the writer's extensive knowledge of the ground he occupies, though we think that he has urged too far the introduction of the hand into the uterus, to accomplish the delivery of the placenta.

The October number of the *New Jersey Reporter*, has three brief articles pertaining to this head. One, by Dr. Joseph Parrish, on the Treatment of Pseudo-membranous Laryngitis; a Report of a Case of Puerperal Peritonitis, succeeded by Phlegmasia Dolens, by Dr. D. B. Trimble, and a case of Protracted and Difficult Labour, succeeded by lesions of the Bladder and Vagina, by Dr. J. S. Smith.

Dr. J. F. Meigs details the history of five cases of Pseudo-membranous Laryngitis, or true Croup; in three of which the operation of tracheotomy was performed, and in two successfully; with Remarks on the Treatment and on the Operation. This valuable article is in the number for April, 1849, of the *American Journal of the Medical Sciences.*

In the same number, Dr. H. Bond has given Cases of Retroversion of the Uterus, with a description of a New Instrument for its Restoration, and some observations on the Displacement of that Organ; with two wood-cuts. A very judicious paper.

6. *General Pathology.*

The general tone of our periodical medical literature, in reference to the laws which preside over morbid action, and to the interior changes which ensue in the procession of the outward phenomena of disease, partakes far too much of that which is intangible, and trans-

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cendental. Things are gratuitously taken for established, that are yet to be shown to exist, and sweeping inferences drawn from premises that are altogether hypothetical. The speculations of other days are as confidently stated as if they had never been disproved, and collateral sciences appealed to for attestation of modern views of disease, with the same fond appetency for an easy solution of the changes incident to pathological action, as when Boerhaave constructed his celebrated eclectic system from materials drawn from all quarters of the universe.

Exceptions to these remarks obtain, and among which exceptions we notice Professor Lee's paper, published in the February number of the *Buffalo Journal*, entitled, Diseases of Sympathetic and Reflected Nervous Influence. This paper is marked by accuracy, extent, and minuteness of physiological and pathological information.

Dr. J. P. Batchelder's article, On the Symptoms, Phenomena, and Exciting Causes of Inflammation, to be found in the September, November, and January numbers of the *New York Journal*, is deserving of especial notice, as the production of a discriminating and analytic mind.

The same Journal for November and March, contains a translated communication from Professor J. B. Pigné, now a resident of the United States, On the Anatomical and Physiological History of those Affections, which are called Inflammatory. Dr. L. A. Sayre, who translated it, deserves our thanks for bringing into the general notice of the profession a production of so much excellence.

Professor Geddings, in the September number of the *Charleston Journal*, discusses, with that elaborateness with which all his productions are stamped, some very interesting points connected with the diseases of the lymphatic system. His paper is entitled, Notes and Reflections on some points of Pathology, involving the Lymphatic System.

In the *St. Louis Journal*, for May and June, Dr. R. S. Holmes (late of the Medical Staff, U. S. A.) has strongly fortified the commonly received doctrines of the koino-miasmatic origin of certain forms of febrile affection, in his article, On Malaria, in connection with Medical Topography; whilst Dr. J. F. Gayley, in the *American Journal*, of January last, has ingeniously endeavoured to revive

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the opinion on the subject which Fordyce, in his work on Fever, and our distinguished countryman, Dr. Bell, have advocated.

Dr. G. Mendenhall, in the *Ohio Journal*, November last, very accurately adduces all the plausible proofs afforded by diseased states of the system, and by chemistry, to sustain the ancient views of morbid states of the blood. In this well-written paper on the Pathology of the Blood, the author, speaking of the fanciful theories which have beset the humoral pathology, says that "the mass of the people, at this time, catch the spirit of the easy solution of their maladies, and, therefore, are always ready with a plausible explanation of every ill to which flesh is heir."

In the series of Medical Essays by L., to be found in each number of the *St. Louis Journal*, from May to April, inclusive, we have an unreserved and unqualified advocacy of the hæmatological doctrines. Remedies, and the causes of disease, act by creating certain changes in the quantity and quality of the blood; "therefore," says the author, "the indications presented by every individual malady, are, 1st, to increase the general amount of blood; 2d, to diminish it; 3d, to change its local determinations; or, 4th, to alter its quality." If this is the correct philosophy of disease, and of therapeutics, then we again touch on the unity of morbid action, and shall soon be conducted to a very easy and compendious method of medication.

The *Annalist*, now under the editorship of Dr. N. S. Davis, contains, in its last five numbers, Short Essays on Pathology; or, An Inquiry into the Nature of Diseases, and the Conditions of the Solids and Fluids which attend them. Thus far the author, the very capable editor of that useful periodical, has not travelled beyond the domains of hæmatology. We shall be much pleased to see him taking some wider, and, to ourselves, more profitable excursions.

7. *Practice of Medicine.*

There is a very abundant supply of contributions, on subjects pertaining to Practical Medicine, to be found in our medical journals of the last year. Our first consideration will be directed to those which treat of epidemic and endemic diseases.

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The *New Orleans Journal* has the following: Dr. A. L. C. Magruder, in the May number, gives a short, but well-written communication, denominated, A History of the Epidemic which prevailed in Vicksburg (Mississippi), during the fall of 1847. This epidemic was yellow fever, and originated in Vicksburg, without foreign aid. During the first week of the epidemic, no matter how the treatment was conducted, every attack proved fatal. The method of cure prosecuted by the judicious author was, after reaction was established, to apply cups to the epigastrium and along the spine, give calomel in moderate quantity, and, when a distinct intermission arose, administer quinine in two-grain doses.

In the July number, Dr. P. H. Lewis gives A Short Account of the Epidemic which prevailed in Mobile, in 1847.

A valuable statistical article is to be found in the same number, from the pen of Dr. E. D. Fenner, compiled from the books of the Charity Hospital of New Orleans, during a period of seven years.

From these tables it appears that 19,445 cases of fever were admitted in that period; 9,991 of which were intermittent. Add to which, 26 marked "pernicious" and "malignant intermittent," and 257 marked "congestive," and you will have 10,274 intermittents. The intermittent form of fever is never absent from New Orleans, not even at the zenith of the worst epidemics of yellow fever.

The same gentleman, in the September number, has presented us with an instructive history of the Yellow Fever of 1847. The deaths from the disease in the city of New Orleans that year, from July 3d to October 18th, inclusive, were 2,739. Many cases could not be distinguished from ordinary remittent, and even intermittent, until they approached a fatal termination. The term *yellow*, says the judicious author, like the term *congestive*, as applied to fever, serves, more properly, to designate a *condition of the system, or stage of disease*, than *any separate, distinct, or specific form or kind of fever*. There were many instances of persons having the fever this year, who had experienced a previous attack. The practice pursued in yellow fever, in New Orleans, is not always the same, because the type of the fever is not always the same.

Dr. W. G. Williams, of Rodney, Miss.; Dr. B. J. Hicks, of Vicksburg, Miss.; Dr. S. A. Cartwright, of Natchez, Miss.; and Dr. Wm. McCraven, of Houston, Texas, have, each of them, in their respective communications to Dr. Fenner, which are published in the same number, given an account of the yellow fever which visited those places in 1847.

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The November number of the same journal is enriched with the very satisfactory history of an Epidemic, Cerebro-spinal Meningitis, which prevailed in Montgomery, Alabama, in the winter and spring of 1848, by Dr. S. Ames. In all points, this paper reflects great credit on our medical periodical literature. It is marked by a careful collection of well-observed facts, by a skilful collocation of them, and a discreet induction from the observations thus diligently made. Its literary execution is in keeping with its other excellences.

Under the head of City Medical Intelligence, Dr. Fenner, the editor of the last-named periodical, has published, in the January number, an account of the Cholera in New Orleans. About the middle of last December, the ship Swanton, from Havre, France, arrived with cholera on board. The arrival of this ship from a city, "where *not a single case of cholera had made its appearance*, and the development of the disease in our midst," says Dr. F., "must be regarded as a coincidence, not as a consequence." "For some days before the cholera appeared, the rain fell almost daily—the atmosphere was close and oppressive—the streets and gutters were surcharged with offal and filth, of every kind—and, at intervals, during the day, an almost tropical sun beamed upon us; whilst, over the city, a murky vapour enveloped and hung as a funeral pall about us."

This epidemic was more severe than that of 1832; "it spared neither the infant in its mother's arms, nor the octogenarian, leaning upon his staff for support." Few persons escaped some disturbance of the digestive tube. During the prevalence of the cholera, many suffered from a mild and manageable attack of influenza. "The force of the disease expends itself," says this enlightened physician, "upon the great ganglia—the centres of the sympathetic nerve—the evacuations being but symptomatic; for many expired without rice-water discharges."

From the yearly Report of Diseases for 1848, of the Charity Hospital, in the same number, we learn that, out of 662, seized with cholera, 396 died.

Dr. C. H. Stone, in the March number of the same, has written a very circumstantial and instructive history of a mild Yellow Fever, which prevailed epidemically in the city of Natchez, during a part of the summer and fall of 1848. The quarantine, established to keep the disease from being imported from New Orleans, was proved to be a measure of futility, of false security—and, says the author, "it will never, I think, find an advocate here again. The former

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theory of the pathology of yellow fever, *acrid bile* and *vitiated blood*, consequent on the diffusion of the acrid bile in the circulation, Dr. Stone strenuously urges, with calomel to correct the perverted action of the liver, is the most efficient medicine. We apprehend that but few will be found to agree with the distinguished author in these views.

The *Charleston Journal*, May, 1848, has the conclusion of Dr. S. N. Harris' Views on Intermittent and Remittent Fever. In it there is a discussion of congestive and other malignant varieties of fever. "Typhus," says Dr. H., "is never seen at the South, but there are analogous forms of attack; such as typhoid pleurisy, typhoid pneumonia, and typhoid enteritis—this latter being variously named, as follicular enteritis, dothinenteritis, &c. Certain localities near Savannah, Ga., are characterized by peculiar tendencies to low forms of disease. At a particular locality on the Ogeechee River, devoted to rice culture, all the attacks were of an adynamic character."

The March number of the same journal contained a succinct account of the Epidemics of Savannah, Ga., in 1847 and 1848, by Dr. Arnold. Also, Some Account of the Origin and Prevention of Yellow Fever in Charleston, S. C., by Dr. Joseph Johnson. The yellow fever is not a contagious affection, but has its origin in local causes. Dr. J. eulogizes, we conceive, too fervently, the prophylactic and disinfectant powers of chlorine. "The fumes of chlorine," says he, "like those from the censer of Aaron, will rise between the dead and the living, and the pestilence be stayed." In that matter, as in many other points of confident reliance on the use of preventive as well as curative means, experience damps our triumph, however big in promise may have been our philosophy.

The *Ohio Journal*, in the January number, presents us with Prof. Judkin's "condensed article" on Cholera. The disease is not contagious, in the opinion of the writer.

The same periodical, March last, has two articles on Epidemic Erysipelas, and one on Epidemic Scarlatina. Drs. S. M. Tweed, and J. H. Brown, have written judiciously on the first-named disease; and Dr. G. W. Boerstler, an old and celebrated practitioner, of Lancaster, Ohio, on the latter. In 1826, Dr. B. bled in scarlet fever, but in 1848 his judgment directed him to abstain from this remedy. So variant were the two epidemics. Dr. M. H. Fee, in

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the March number of the *Western Journal*, gives an interesting history of the Typhoid Fever, as it appeared in the vicinity of Heltonsville, during the winter of 1846, '7, '8. This epidemic was confined almost entirely to streams and alluvions. Cancrum oris prevailed very extensively in the same localities. The Dr. divides the disease into three varieties: 1st, typhoid, with Peyerian complication; 2d, with pneumonic complication; and 3d, typhoid, with congestion of the portal circulation.

Dr. M. Y. Brockett, in the same number, gives a brief account of a fever, which prevailed in the mountain district of Tennessee, in the fall and winter of 1847–8. The type was typhoid. There was no cause of disease on the surface of the soil; the country is free from swamps and collections of stagnant water. The September number of the *St. Louis Journal*, has an article by G. W. Sickles, on the Epidemic Typhoid Fever, which prevailed in north-eastern Missouri, in the winter of 1847–8. "All we know," says Dr S., "in the West, of true typhus, is from books." Out of thirty cases of the epidemic, five or six only were maculated.

The *Western Lancet*, for July, contains a Clinical Lecture of Prof. John P. Harrison, on Typhoid Fever. In that lecture, an attempt is made to prove that the differential diagnosis, or essential pathology of typhoid fever, is strikingly revealed by certain fixed attributes of the disease.

Dr. Isaac Casselberry, in the same number, has given an account of the Epidemic Dysentery, which prevailed in Evansville, Indiana, in the summer and fall of 1848. Prof. Lawson has discussed the Nature and Treatment of Cholera, in the November and December numbers; and, in the March number, the same great topic is dwelt upon by Prof. Harrison, in a Clinical Lecture, and by Dr. D. L. Starr, in a very sensible article.

Thoughts and Observations on Congestive Fever, by Dr. Charles E. Lavender, of Selma, Ala., possess high claims to a distinct notice. The article is to be found in the July number of the *American Journal*. "Quinine," says the writer, "is the *great remedy* in all cases of marked periodicity, and emphatically so in *congestive chills*. Miasm is a poison that depresses the vital force; quinine exerts an antagonist power. Under its administration, the pulse becomes more firm, and somewhat flowing, with a peculiar swell, regular, and twenty or thirty beats in the minute less frequent."

Prof. Coventry's Report on Epidemic Cholera, will be found in

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the *Buffalo Journal*, for August, and was made in accordance with the instructions of the Faculty of the Geneva and Buffalo Medical Schools to visit Europe, for the purpose of investigating the nature and mode of treatment of the disease. Prof. C. conceives that the first step in the morbid process is a depression of nervous energy, caused by the action of an impure air. This depressed nervous energy leads to defective elimination of carbon—the carbon accumulates in the blood; congestion of the internal organs succeeds; the portal system and right side of the heart are oppressed, and the vomiting and purging, are but efforts of the system to relieve itself of congestion. The practical directions are far better, we think, than the compendious and quickly arrived at pathology.

Remarks on Dysentery, as it prevailed in East Bloomfield, N. Y., during the autumn of 1848, is the heading of a very well-written article by Dr. S. G. Meachem, to be found in the same journal, for December. The author is an anti-contagionist, and attributes the origin of the epidemic to malaria. He plunges, however, into congestion of the portal circle too deeply for our vision to follow him. Whatever objection there may be to his theory, there can be none to his plan of practice, which is perspicuously laid down, and with adequate decision directed to meet the emergent difficulties.

Prof. Lee, in the same number, has made known to the profession, in a Clinical Lecture, his views on Aphonia and Stammering. He imparts some clear, philosophical ideas on these two pathological conditions, but confesses our inability to interfere efficiently in many cases of them.

The *New York Journal*, for May, has an article on the Epidemic Erysipelatous Fever, as it occurred in Bethel, Fairfield county, Conn., by Dr. H. N. Bennett, which is deserving of a careful perusal. The epidemic commenced in the form of a febrile angina, about the middle of November, 1847. The serous membranes were a frequent seat of the disease, especially the pleura and peritoneum. The evidence was strongly in favour of the contagious nature of the epidemic. Large numbers, however, of those who attended upon the sick entirely escaped the disease. Four cases of puerperal fever occurred in this gentleman's practice, out of twenty-one females who were confined during the epidemic.

Dr. G. F. Turner, Surgeon U. S. Army, has drawn up a brief account of a severe form of Epidemic Miliary Fever, which appeared

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at Fort Snelling, Upper Mississippi, in the winter of 1847–8. This is to be found in the July number of the same journal.

The January number of the same periodical contains Prof. Dickson's paper, on the Progress of Asiatic Cholera, during the years 1844, '45, '46, '47, '48—with a map. The acute and powerful intellect of this distinguished teacher seems to wander in uncertainty in pursuit of the *materies morbi;* whether a vegetable fungus, a nucleated cell, an insect or animalcule, or an emanation aerial, gaseous or chemical, he cannot tell. Contagious propagation, for the cholera, is derived from the supply of that agent which affected the patient with disease. Here is a ready solution of its mode of travel; from the Ganges to the Thames; from the Thames to the Ohio; from thence to every insulated position it has ever attacked in our Western States. And yet, contagious as the Professor deems it, he avers that quarantine regulations and cordons sanitaires, prove mortifying failures. With all our high respect for this eminent physician's intellect, we must deem his solution too easy for the intricate questions involved. And we trust that his active mind will not rest satisfied with such a rapid and ready dismissal of the matter.

Dr. Wm. H. Macneven, in the same journal, for March, 1849, in his Remarks on the Mode by which Cholera is propagated, attempts to reconcile the conflicting opinions in relation to its contagious and non-contagious character, whilst he contends that, like small-pox, chicken-pox, measles, scarlet fever, yellow fever, and typhus fever, cholera is propagable by fomitescent, endemial, and epidemical contagion; and that contagion is dependent upon purely chemical laws. A kind of fermentative assimilation is at work, which, however, no chemical tests have ever yet discovered to exist. This may be accepted as the true explanation of this difficult subject, as long as we are content to take the philosophy of analogy for that of induction. The paper is a learned and ingenious production, and is deserving of a strict examination.

In the *Boston Journal,* January 24th, the Board of Consulting Physicians of the City of Boston, Drs. Warren, Bigelow, Shattuck, Hayward, and Ware, in their communication to the public, state that neither quarantines by sea, nor sanitary cordons by land, have ever checked the progress of cholera, and therefore no one need be agitated by the terrors which the belief in the contagiousness of a disease is sure to engender.

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The May and June numbers of the *St. Louis Journal*, furnish us with some intelligence of the Mine Sickness, or Lead Disease, found among the diggers and smelters of lead on the Missouri. Dr. J. H. Johnson, in his article, says that, in the vicinity of the furnaces at Galena, animals, such as horses, oxen, pigs, and even poultry, are subject to the disease.

Dr. S. Skeel, in the September and October numbers, states that the miner, the digger, and the cleaner of the lead ore are each of them subject to the affection. It is hoped that some of our medical brethren will prosecute with additional labour these inquiries, and make known to the profession the results of their more prolonged research.

The most prominent communications in our medical periodicals, which treat of contagious maladies, we shall next notice.

In the May and June numbers of the last-named journal, Dr. John Barnes has presented a melancholy recital of the terrific progress of small-pox among the aborigines of the Upper Missouri. Eighteen hundred miles above St. Louis, once lived the small tribe of Mandan Indians, numbering about two thousand souls. The small-pox appeared among them, and in a short time only twenty-seven old people were left of the entire tribe. And these twenty-seven survivors had suffered from the disease in 1802. The Pawnees, Ottoes, Omahas, and Kansas, lost one-half of their nation; and the Ponchas two-thirds. Col. Mitchell, U. S. agent, gives a dramatic scene, full of tragic woe, of the destruction of a Mandan chief's whole family by small-pox. "One by one they perished; and, as they died, he would arrange their bodies in a sitting posture, side by side, around his lodge, and chant their death-song over them during the entire night —all day he would sit on his lodge, and tell the spirits of the departed his grief. He ate no food—and now, when all were dead, he took his last corpse, that of a favourite son, and placed it by the side of his deceased mother. The next morning, the poor broken-hearted chief was found prostrated in the midst of his dead family."

Dr. F. W. Sargent, in the April number, 1849, of the *American Journal of the Medical Sciences*, has made a very full Report of Cases of the Small-Pox received into the Philadelphia City Hospital in 1845–6. Of 287 cases of variolous disease, 69 died; and of these last, eight had been previously vaccinated. Generally, the patients had been vaccinated in infancy, and but once in every in-

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stance. Dr. S. tested the value of tincture of iodine to prevent pitting, and found the application successful.

In the *Western Journal*, August, 1848, Dr. W. L. Sutton, an enlightened and popular practitioner of medicine, has furnished a clever essay on the Etiology and Diagnosis of Small-pox and Chicken-pox. Dr. W. S. Wragg (*Charleston Journal*, March, 1849) has insisted on the essential unity of these cutaneous diseases, in his paper, headed Some Thoughts on the Connection between Varicella and Variola, with Cases tending to show their Identity in Nature.

In the Proceedings of the Ohio Medical Convention, held at Columbus, May 18, 1848, is a condensed view of the Protective Power of Variola Vaccina, by Dr. G. Mendenhall.

Professor Samuel Jackson, in the April number of the *American Journal*, has published Observations on Hydrophobia, with Cases, in one of which chloroform was administered with a favourable result. This accomplished author and teacher makes a proper distinction between hydrophobia and rabies canina. The one being but a symptom very frequently of nervous attacks, and the other essentially an incurable affection—"Neminem sanatum fuisse," as Dioscorides hath said.

A case of fatal hydrophobia is related by Dr. Curtis, of Lowell, in the same number. In the October number, 1848, one may be found by Dr. H. Hartshorne, in which chloroform inhalation was employed to the obvious alleviation of the sufferings of the patient; and another case is stated in the January number, 1849, by Dr. Coale.

Dr. Charles Frick's paper, *American Journal*, October, 1848, entitled Remarks on the Oxalate of Lime Diathesis, with Cases illustrative of the Disease, indicates a familiar acquaintance with the disease, the pathology and treatment of which he so clearly discusses.

Dr. Henry Hartshorne relates, in his Notes of Hospital Practice (same number), five interesting cases which occurred in the Pennsylvania Hospital, and, in the January number, various points of a practical kind are introduced, and satisfactorily noticed.

In the October, 1848, January and April, 1849, numbers of the same journal, Dr. Samuel Parkman communicates Extracts from the Records of the Boston Society for Medical Improvement. These

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valuable papers contain many instructive cases of disease, and the Dr. is to be commended for the fidelity with which they are reported.

Dr. Ruschenberger, Surgeon United States Navy, in the October number, adds his contributions to Pathology; being a report of fatal cases taken from the records of the United States Naval Hospital, New York.

The Annual Report of Dr. Coates, presented and read at the stated meeting, October, 1848, of the College of Physicians, Philadelphia, comprises much that is good, though the time allotted him was too short for a more expanded consideration of the subject.

The four numbers of the *Quarterly Retrospect of American Practical Medicine and Surgery*, are filled with well-selected matter from our various medical periodicals.

The *New Orleans Journal*, July, 1848, has Remarks on some Diseases which prevailed in the 2d Regiment, Mississippi Rifles, for the six months of its service, by Dr. Thos. N. Love, Surgeon to the Regiment. The mortality among these brave men was enormous. The original number of the Regiment was 885; deaths, 167; of whom 80 died before leaving Orleans, 28 on the Gulf, and 59 in Mexico. Ninety-seven were carried off by cold plague, or a low form of congestive fever. An interesting paper, and indicative of a high order of professional intelligence.

In the same number, Dr. C. E. Lavender gives a curious instance of anthropo-toxicologia, or of woman-poisoning. Two wives were destroyed by the odorous exhalations from the same husband. We, however, look on the cases as admitting of another mode of solution. No doubt fetid effluvia from the living human body are very offensive to the olfactory sense, but there exists no obvious correspondence between fetor and fatality, in such a villainous smell.

Cases of Pneumonia Typhoides; with Remarks on the Use of Acetas Plumbi, in this Affection, are reported by Dr. M. C. Hasbrouck, in the *New York Journal*, July, 1848.

In the same journal, March, 1849, are Extracts from the Reports of the Proceedings of the New York Pathological Society; in which we find, Cases of Chronic Abscess in the Cellular Tissue of the Peritoneum, by Dr. Sayre; Report on the Pathology and Diagnosis of Chronic Scrofulous Disease of the Testicle, by Dr. Markoe; a Case

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of Solitary Hydatid of the Uterus, by Dr. Macneven; Poisoning by Opium, with post-mortem appearance, by Dr. Wood; and the Pathological Anatomy of Yellow Fever, by Drs. W. C. Anderson, Ashbel Smith, and Professor Dickson.

The June number of the *Western Journal*, has Dr. W. G. Procter's Inaugural Dissertation, on the Diseases of the United States Army on the Rio Grande. It is an article of interest, and is accurate in its statements, as well as perspicuous in the practical details.

Dr. David W. Yandell, a young physician, whose professional life has so auspiciously begun in the pleasing demonstrations already afforded, of a cultivated intellect, and glowing zeal for his profession, in the July number of the *Western Journal*, has made a communication on Medical Matters and Medical Men in Paris, and, in the February number, given a translation of the Lectures on Typhoid Fever, by M. Brachet.

Dr. J. C. Harris, in the July number, has Observations on the Causes and Treatment of Jaundice. With his paper is an Abstract of a Meteorological Register, kept at Wetumpka, Alabama, for the years 1847 and 1848. There are evidences of industry, care, and ability, in the production. Typhoid Fever, as one of the Exanthemata, is the title of an ingenious paper, by Dr. A. B. Williman, to be found in the *Charleston Journal*, July, 1848. Dr. W. has placed the question of typhoid contagion in rather an awkward dilemma, by declaring, "When our knowledge shall be more full as to the condition of the *person giving infection*, the state of the *one receiving it*, and the *medium through which such transference is made*, then it may be safely believed that the contagious nature of typhoid fever will be made manifest."

Dr. T. McGown, gives Remarks on Chronic Diarrhœa and Dysentery, in the *Western Lancet*, of June. He thus pronounces, with just animadversion, on Dr. Cooke's theory of portal congestion, and recommendation of calomel medication. "When will the great valley of the Mississippi cease to feel the baneful influence of this theory? One who is familiar with the satire of Dr. Davenport, might infer that many physicians have read the following, and taken it in its literal sense.

"'O, giant-minded Cooke! whose *cava* pills
Have borne thy name aloft, o'er vales and hills;
Whose genius glows on thy induction page,
(That proudest fabric reared in any age.)'"

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But, in the West, we congratulate ourselves that the giant evil, the calomel mal-practice, as founded on the congestive unity of disease, has gone into irreparable decadence, and is well-nigh extinction.

Contained in the August number of the same journal, is an excellent paper, by Dr. W. S. Chipley, on Spinal Meningitis. And in the January number, a very good practical paper by Dr. John A. Murphy, on Biliousness.

The *Buffalo Journal* (July, 1848) publishes Cases treated at the Medical Dispensary, Medical Department of the University of Buffalo, by Prof. Flint. And, in the November number, Cases of Fever, with Remarks, by the same eminent teacher and practitioner.

A lady figures, with signal proofs of a thorough literary and scientific culture, in the same periodical, for February, 1849. Elizabeth Blackwell, M. D., a graduate of Geneva Medical College, does not discredit, but rather reflects high credit on her Alma Mater, in her Inaugural Thesis on Ship Fever. It is a paper that would do honour to any of our graduates. We trust that the days of chivalry are not gone, and that from the medical profession this lady will ever receive encouragement, kindness, and respectful consideration.

Prof. Flint (March, 1849) again favours the profession with a valuable contribution, in a Clinical Lecture on the Diagnosis of Pulmo-Tuberculosis.

Psychological Medicine has been a department of practical medicine which has received a large amount of enlightened consideration in the United States. The *Journal of Insanity*, edited by the Officers of the New York Lunatic Asylum, Utica, with the fitting motto from Grotius—"*the care of the human mind is the most noble branch of medicine*"—deserves the warmest eulogy. And the Annual Reports of our various Lunatic Asylums, with the Special Report of Dr. Howe, to the Legislature of Massachusetts, on Lunacy and Idiocy, should be consulted by every mind eager for information on this great subject.

8. *Medical Biography.*

It is an obligation which we owe to our profession, to prolong upon the page of history the memory of the good and great, who have passed their days amid the solemn and responsible duties of medical practice. And the pen of friendship, with ready devotion, traces, in words of tenderness and warmth, the characteristic attributes which individualized the life and conduct of the departed.

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Inurned, and laid to rest, among the many who sleep with their fathers, are some of our professional brethren, who have been called thence since we last met. Among these, we see in our medical periodicals the names of Oliver Partridge, and Enoch Hale, whose biographies are too briefly, but beautifully sketched, in the *Boston Journal*, by Drs. Williams and Channing.

Also, John Richardson Buck, a young physician of great promise, of spotless name, and of ennobling aspirations. The *Western Journal*, with a just appreciation of his many excellences, declares that, had he lived, the profession would have been enriched by his labours—for already had he manifested talents of a high order, as a practitioner, a lecturer, and a writer.

A memoir of C. A. Luzenberg, late of New Orleans, has been published by his friend, Dr. Logan. Dr. Luzenberg attained great eminence as a practitioner in that city, and was universally regarded as a man of genius and varied attainments in his profession.

The *New Jersey Medical Reporter*, July and October, presents us with an Obituary Record. This appropriation of a part of its pages to the notice and celebration of the lives of virtuous and scientific physicians, deserves our especial commendation. Among such, we see the names of Isaac S. Haines, A. B. Ross, D. Greenman, John Ross, Stacy Budd, John Brognard, Benj. S. Budd, John L. Stratton, N. W. Cole, Elias J. Marsh, and Bowman Hendry. And in the *Transactions of the Phil. Coll. of Physicians*, August last, Dr. Norris has afforded the profession mournful satisfaction in the perusal of his Biographical Notice of Dr. Jacob Randolph. In the January number of the same, Dr. I. M. Paul traces, with a truthful hand, directed by the affectionate remembrance of a departed friend, the obituary notice of Dr. Henry Neill.

The editor of the *Ohio Journal*, January, 1849, gives a "Biographical Sketch of the late Dr. Sisson, of Columbus, Ohio," who was an amiable, exemplary, and intelligent physician.

9. *Empiricism.*

Whilst there is a general lamentation among us of the prevalence of charlatanry, the profession at large seem disposed to acquiesce in it as a shunless destiny;—as a fixed perpetuity of ignorance, impudence, cupidity, and inhumanity, to be entailed from generation to generation, upon society. Not, however, in this unhappy aspect—this sombre hopelessness, should the abominations of quackery be

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regarded. But, like all the other moral and physical ills which beset our race, this giant evil should be met by appeals to the reason, and by demonstrations of the abuses which it engenders.

And we are glad that some of our medical periodicals have prosecuted their discussions on the subject of empiricism with so much earnestness. Truth is mighty, and will prevail; yes, but to prevail, truth should not be deserted by her friends, or permitted to be trodden vilely under the feet of her enemies. Let the men in the high places of the profession speak—not shrink from a bold avowal of their unconquerable hatred of the dark and ruinous ways of medical imposture, and society will finally be impregnated and purified by the truths which honest and honourable, humane and scientific physicians utter, not from the sinister regard to their own little interests, but from the inspiration and the glow of a generous devotion to the health and happiness of their fellow-men. The best article on this subject, which we have met with in our periodical medical literature of the last twelve months, is one on the Nostrum Trade—Its Influence on Health and Morals, to be found in the *Boston Journal*, September 13th, 1848. In this, which might be designated a brilliant effusion of a thinking, disciplined, and astute intellect, an ample exposure is made of the tricks and devices, folly and wickedness, of the nostrum trade. We solicit the writer again to appear, and gladden our spirits, and enrich our minds, by similar contributions.

In the same journal, January 10, 1849, under the caption Influence of Quackery on Health, Morals, &c., are the remarks of Mr. Sanborn, of Hanover, in the New Hampshire Legislature, upon the bill incorporating the New Hampshire Medical Botanic Society. In this spirited and sensible speech, the rampart forms of quackery are admirably exposed.

"Empiricism in Boston." Under these rather startling words an adopted citizen writes to the Editor of the *Boston Medical and Surgical Journal*, concerning some remarkable and notorious impositions practiced upon the citizens, and particularly the Irish adopted citizens, by certain doctors, in what he terms "the truly called Athens of America."

Dr. J. L. Chandler, in the same journal, November 8, 1848, speaks to the point, and with justly awakened indignation, when he thus declares his convictions: "May not something be effected to stay the sweeping pestilence? Has not the public, suffering and wasting as it is under such a terrible scourge, some claim on the benevolence of the profession? The nostrum maker, the nostrum

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vender, the nostrum eater — superlative, comparative, positive—a trio of devils incarnate—the personification of sin, sorrow, and death —stealing the brains, corrupting the heart, and killing the body. But enough of this; if vituperation could cure the evil, it might be well to rail on. Considerate labour is more to the purpose; and I trust the subject, in some form, may occupy the attention of the American Medical Association."

The *St. Louis Journal*, July and August, has two articles on quackery; one, by Dr. Samuel Willard, an inaugural thesis, designated Fallacies of Homœopathy, and the other, by Dr. O. Lumaghi, entitled Homœopathy, Hydropathy, and Raspail's Method, compared with practice more generally adopted. In both of these papers there are sound and discriminating reflections on the errors combatted.

Professor Butterfield, in the *Ohio Journal*, March, 1849, under the head Quackery and the Legislature, writes in an animated strain on this subject. He was excited by urgent feelings of disgust and indignation toward the vile machinations of the botanicals, in their intrusive forwardness to gain access to the Cincinnati Hospital.

In the numbers of the *Western Lancet*, for June, July, August, September, November, and January, are articles on Empiricism, written by one of the editors.

In the *Buffalo Journal*, June and July, 1848, Dr. Wm. Treat writes with force and variety of discussion on Old Physic and Young Physic; in School and out of School.

10. *Medical Education.*

This commanding theme of professional thoughtfulness has not been, to any great extent, agitated in our medical journals. In connection with our notice of the few articles on this subject to be found in our periodical literature, we shall adduce those occasional efforts delivered before societies.

Professor Yandell, in his Introductory Lecture, published in the November number of the *Louisville Journal*, makes medical education the main topic of his eloquent discourse.

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Professor Moultrie, in the *Charleston Journal*, January, 1849, has conspicuously treated on the great points involved in the question.

Professor Beck's Address (*New York Journal*, March, 1849) to the Graduates of the College of Physicians and Surgeons of New York, at the commencement held March 12, 1846, principally refers to the best modes of conducting the medical inquiries of the student.

The Anniversary Discourse before the New York Academy of Medicine, by Dr. James R. Manley, is a frank and poignant address. It has fine salient points, free disclosures, and ingenuous avowals. It urges the popularizing of medical knowledge; of pouring forth, through the channels of popular instruction, the stream of medical learning. This we cannot help regarding as Utopianism, if not ultraism. Dr. Manley is unjustly severe, we humbly submit, towards our medical schools. "The time was," says he, "when the schools of medicine gave character to the profession; but that time has long since passed by; it is now its chief anxiety to prevent the schools from destroying it." This is, assuredly, a severity of rebuke disproportioned to the real delinquency incurred. Where are the verifications of this denunciatory language? And if some of our medical schools have proved derelict to their high trust, is it not unkind thus to consign them all to infamy?

How much more genial the spirit which breathes through the Annual Address of Professor Stevens, delivered before the New York State Medical Society, and members of the Legislature at the Capitol, Feb. 6th, 1849. The Plea of Humanity in behalf of Medical Education, will enhance the already exalted reputation of its author, and essentially contribute to elevate our profession in public esteem.

11. *Vital Statistics.*

Medicine exhibits its most enlarged scope of action as a science, in those inquiries which go to determine the laws which govern the development of man's faculties, and the ratio of mortality and reproduction of the species.

Vital statistics have received but little attention from the medical profession in this country. It is a branch of study deserving, from its inherent dignity and importance, of a more concentrated regard. Already, some of our writers have bestowed a laudable zeal on its behalf. Among these, whose contributions on this subject have ap-

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peared in our medical journals within the year, the most conspicuous are Dr. Gouverneur Emerson, and the late Dr. Samuel Forry.

In the *American Journal*, July, 1848, Dr. Emerson has published a valuable article on the Vital Statistics of Philadelphia, for the decennial period from 1830 to 1840; and in the same number appears another article of his, on the Causes Operative in determining the Proportion of the Sexes at Birth. This gentleman has been a careful labourer in this field, and already reaped a rich harvest of honour in the work.

The May number, 1848, of the *New York Journal*, contains a posthumous publication, emanating from the late much lamented Forry. It is designated by the term Hygiology, and its Relations to Vital Statistics, and, as stated by Prof. Lee, it constitutes a portion of the first chapter of an elaborate work left by Dr. Forry. This work, yet unpublished, because Prof. Lee could find no one who was willing to publish it, was submitted to the examination of Mr. Gallatin, who expressed a high opinion of its merits, and strongly advised its publication.

This manuscript work is entitled "Vital Statistics: The Development of Man's Faculties, and the Laws of his Mortality and Reproduction, viewed in their relations to Hygiology, or State Medicine."

We are assured, from the previous publications which came from Dr. Forry's fruitful genius and indomitable diligence, that this posthumous work would reflect honour upon the medical profession, and greatly redound to the elucidation of many difficult points of inquiry, pertaining to vital statistics.

12. *Medical Topography.*

But few communications on this subject are to be found in our medical journals for the last year.

Dr. Robert Newton, of the Medical Staff, U. S. Army, in the Nov. number of the *New York Journal*, gives an interesting article on the Medical Topography of the City of Mexico.

In the *Southern Journal*, Nov. 1848, Dr. S. Fort has published an instructive paper on the Sources of Bilious Remitting Fever, in which the medical topography of Milledgeville, Ga., and its neighbourhood, are given.

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Dr. R. S. Holmes' article, already referred to, on Malaria, in Connection with Medical Topography, may be read with profit. A particular enumeration of the circumstances, conducive to the extrication and diffusion of marsh effluvia, are satisfactorily described.

III. ORIGINAL MEDICAL PUBLICATIONS.

1. In point of elegance of form, as well as exactness and completeness of execution, the Illustrated System of Human Anatomy, Special, General, and Microscopic, by Dr. Samuel George Morton, surpasses all the works which have proceeded from American medical authors within the last year. This celebrated *savant*, whose reputation has been carried abroad to a wide extent, and whose name is familiar to the profession at home, through his Crania Americana, Crania Ægyptiaca, and Pulmonary Consumption, has, in his last work, conferred additional renown upon our literature.

A table of contents would have added to the attractiveness of the volume, and will, we hope, be supplied in the next edition. The author says, in that spirit of ingenuous modesty, which ever blends itself with the highest performances, that his incentive in producing the book, is the wish "to be enrolled among the expositors of a science, which has occupied many of the best years of my life." An honourable aspiration, and one which has already received its realization!

2. Prof. Meigs has issued a new and greatly enlarged edition of the Philadelphia Practice of Midwifery, under the title of Obstetrics, the Science and the Art.

Earnestness, directness, and force, distinguish the style; but there plays about his pen, at times, a too excessive brightness of rhetorical fancy. Solidity of judgment, and acute penetration, redeem the work most completely of its minor defects, and confer upon its amiable and accomplished author a solid increment of professional fame.

3. Prof. Miller has recently published a work, under the name of A Theoretical and Practical Treatise on Human Parturition. The preface is written in a playful mood, with a slight touch of humourous extravagance. In it, the author tells the reader that he "is a backwoodsman, having been brought to light in Kentucky, by a process which it is his purpose to unfold in this treatise." And every one, acquainted with the author, both in his private relations,

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and in his capacity as an efficient teacher of obstetrics, will bear testimony to his declaration, that "he loves his vocation, notwithstanding the difficult and responsible duties it imposes, and would not exchange it for any other; to this attachment, more than superior capacity, he honestly ascribes whatever proficiency or eminence he may have attained in it." The treatise is a perspicuous explication of the process, in all its varied presentations, of which it treats, and is an encouraging proof of the onward progress of Western Medical Literature.

4. A Practical Treatise on the Diseases of Children, by Dr. J. Forsyth Meigs, has been added to the valuable works of Dewees, Eberle, Stewart, and Condie, on that class of affections, often so obscure in pathology and difficult of treatment.

5. Report of the Sanatary Committee of the Board of Health of the City of New York, on the subject of Asiatic Cholera, by Dr. A. B. Whiting.

6. Report of the Surgeon General (Dr. Lawson) to the Secretary of War.

7. Report of the Medical Department of the University of Pennsylvania, for the year 1848.

8. Essays on Infant Therapeutics; to which are added Observations on Ergot, and an Account of the Origin of the Use of Mercury in Inflammatory Complaints. By John B. Beck, M. D.

Prof. Beck has collected the valuable papers, which were published separately, and by their united publication conferred a benefit on the profession.

9. Medical Chemistry, for the Use of Students and the Profession: being a Manual of the Science with its application to Toxicology, Therapeutics, Hygiene, &c., by Prof. D. P. Gardner, is the best work with which we are acquainted, as an elementary text-book.

10. A Practical Treatise on Poisons, by O. H. Costill, M. D.

11. A Treatise on Etherization in Childbirth, illustrated by 581 cases, by Dr. Walter Channing, is a work of interest and novelty.

12. Treatise upon the Nature and Treatment of Morbid Sensibility of the Retina, or Weakness of Sight, by J. H. Dix, M. D.; being the dissertation to which the Boylston medical prize, for 1848, was awarded. This is a very interesting contribution to practical science; it is sound and instructive, and well deserves the intelligent award.

13. Medical Lexicon—a Dictionary of Medical Science. Robley Dunglison, M. D. Prof. Dunglison is an indefatigable author, as

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well as acceptable teacher. To this seventh edition he has added about 7000 words not found in former editions.

14. Practice of Medicine, by George B. Wood, M. D. 2d edition.

Prof. Wood possesses learning, zeal, and a cultivated style. His work has already gone to all parts of our common country, and is everywhere received with favour.

15. Practice of Medicine, by John Eberle, M. D. The late Prof. Eberle's Practice has gone through numerous editions, and is still held in high estimation by the profession.

16. Medical Lexicon of Modern Terminology. Second edition, greatly enlarged. By D. Meredith Reese, M. D.

17. Botany of the United States, North of Virginia. By Lewis C. Beck, M. D. Second edition. Revised and enlarged.

18. On Bandaging and other Operations of Minor Surgery, by Dr. F. W. Sargent, is a work eminently adapted for the instruction of students in the art of bandaging, and the mode of performing some of the minor operations of surgery.

19. Chemical and Pharmaceutical Manipulations, by Campbell Morfit, assisted by Alexander Mucklé.

20. Lectures on Yellow Fever; its Cause, Pathology, and Treatment, by Dr. John Hastings, United States Navy, is a small work of considerable interest, and practical value.

21. On the Cryptogamous Origin of Malarious and Epidemic Fevers, by Prof. J. K. Mitchell, is an ingenious production, admirably illuminated by genius, but not calculated to bring us much nearer the final adjustment of the difficult question at issue.

This distinguished champion of "funginerous power," speaks of fevers, milk sickness, sudor anglicanus, cholera, potato rot, many cutaneous diseases, aphthæ, leprosy, and other evils, as the result of this agency. The following sentence forms a sort of epitome of the doctrine advanced by our excellent friend. "If they have, as Hensinger alleges, a polarizing membrane, and consequently electrical relations to the polarized vesicles of marsh mist, that mist, imbued with moisture, enriched by the terrestrial emanations and screened by the shadows of the night, may form the most fruitful floating soil for the invisible cells of microscopic cryptogami."

22. Observations on the Pathology of Croup, with Remarks on the Treatment by Topical Medications, by Dr. Horace Green, is a small book, the pretensions of which we regard as disproportioned to its real merits.

23. The Principles and Practice of Medicine, in a Series of Essays,

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by Dr. John W. Hood, is an original effusion of brains seething with fantasy. *Cucullus not facit medicum*, might be a good imprimatur to the book. Its originality lies in visceral displacement, a theory which is beautifully illustrated in the very conception, maturation, and delivery of this strange abortion.

24. The Complete Practical Work on Venereal, and a Treatise on Seminal Diseases, together with Hints to Young Men, by Homer Bostwick, M. D., and Homer Bostwick, Surgeon. There is an eager, voracious love of gain, working with sleepless care, through the whole of these spurious fabrications of medical authorship.

We gladly turn from such dark spots in our medical literature to a work of brilliant elegance and exalted aim. Prof. Bartlett has produced another work, characterized as his others were, by purity and genial flow of diction, accurate scholarship, and lucid exposition.

25. "An Inquiry into the Degree of Certainty in Medicine, and into the Nature and Extent of its power over Disease," is the title of the new production of the richly endowed intellect of this eminent writer and teacher.

In reading this book, two questions have arisen in our minds—first, is our profession ever to be put on the defensive, in the maintenance of its just claims on the respect and consideration of society?—are no aggressive movements to be made on the systems of quackery which infest the land, and hang with incessant harassment on our march?—are we to be content with demonstrations of what is so obvious a truth, that medicine is a certain and useful science, and not breathe the atmosphere of an unrestrained freedom in our fearless discussions of the evils of medical imposture? Second, if medicine be a certain science, as we are all assured it is—and the common belief of mankind in its utility evinces that they entertain a like assurance—in what special modes is this certainty to be more firmly established? It lies not within our province in this report to respond to this frequent interrogatory.

26. A Dictionary of Dental Surgery and Medical Terminology, by Chapin A. Harris, M. D.

IV. MEDICAL COMPILATIONS AND COMPENDS BY AMERICAN WRITERS.

Drs. John Neill and Francis Gurney Smith, have offered the medical students of our country an accurately compiled series of works, called Analytical Compendium of the Various Branches of Medical Science, for the Use and Examination of Students. Anatomy,

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Physiology, Surgery, Obstetrics, Materia Medica and Therapeutics, Chemistry, and the Practice of Medicine, are embraced in this work.

V. AMERICAN REPRINTS OF FOREIGN MEDICAL WORKS.

In contemplating our medical literature three prominent aspects are presented: first, its mixed and fused condition; second, the great predominance of English authorities; and third, its general character of excellence. The medical literature of our country, beyond all others, is made up of rich and copious infusions from every quarter of the ancient and modern civilized world. Into our capacious reservoir are poured the best effusions of the French, German, Italian, and English press. In this we show that science is truly cosmopolite, and that we prefer truth, no matter in what soil it may have been nurtured, and under whatever sun it may have been quickened into life, to error, though warmed into life, and animated into luxuriance, by our own skies. Nor do the materials brought from other shores remain inert and cold amidst the profusion of our own collection; but, mingled together, a rapid action of composition and decomposition ensues, till new currents are set in motion, and fresh creations arise.

The English element, of all foreign influences, has the decided ascendency in our medical literature. As one of the *northern lights* of the profession, a finished scholar, a polished writer, a learned physician, and a pleasing poet, has said, addressing himself to England,

> "Nor o'er thy far horizon springs
> One hallowed star of fame,
> But kindles, like an angel's wing,
> Our western skies in flame."

Though much indebted to foreign sources for the opulent fulness of our medical literature, yet, with all these abundant materials derived from the wide circle of the profession, we exercise a power of control over the copious supplies, by which they are subordinated into strict harmony.

The following are the principal foreign works which have been reprinted during the last twelve months:—

1. On Disorders of the Cerebral Circulation, and on the Connection between Affections of the Brain and Diseases of the Heart, by George Burrows, M. D.

2. On the Theory and Practice of Midwifery, by Fleetwood

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Churchill, M. D. With notes and additions, by Professor Huston. Third American Edition.

3. Practical Observations on certain Diseases of the Chest, and on the Principles of Auscultation, by Peyton Blakiston, M. D.

4. The Nature and Treatment of Deafness and Diseases of the Ear, by Wm. Dufton, M. R. C. S.

5. A Dispensatory and Therapeutical Remembrancer, by John Mayne, M. D. Revised, with the addition of the Formulæ of the U. S. Pharmacopœia, by R. Eglesfeld Griffith, M. D.

6. A Dispensatory, or Commentary on the Pharmacopœias of Great Britain and the United States, by Robert Christison, M. D. Second edition, revised and improved, by R. Eglesfeld Griffith, M. D.

7. A System of Clinical Medicine, by Robert James Graves, M. D. With notes, and a Series of Lectures, by W. W. Gerhard, M. D.

8. Lead Diseases: a treatise from the French of L. Tanquerel des Planches. With notes and additions on the use of Lead Pipe and its Substitutes, by Samuel L. Dana, M. D., L L. D.

9. Lectures on the Theory and Practice of Physic, by John Bell and Wm. Stokes, M. D. Fourth Edition.

10. An Account of some of the most Important Diseases peculiar to Women, by Robert Gooch, M. D. Second edition.

11. Clinical Midwifery: Comprising the Histories of 541 Cases, &c., by Robert Lee, M. D.

12. The Text Book of Practical Anatomy, by Robert Harrison, M. D. With additions by an American Physician.

13. Memoranda on Anatomy, Surgery, and Physiology, by Mark Noble Bower, Surgeon. Corrected and enlarged by an American Physician.

14. On the Blood and Urine in Disease, by John William Griffith, M. D., G. Owen Rees, M. D., and Alfred Marckwick, M. D., in one volume.

15. Researches on the Motion of the Juices in the Human Body, by Justus Liebig, M. D. Edited from the English edition, by Eben N. Horsford, A. M.

16. Manual of Physiology, by Wm. S. Kirkes, M. D., assisted by James Paget.

17. An Introduction to Practical Chemistry, including Analysis, by John E. Bowman.

18. The Human Brain; its Structure, Physiology, and Diseases, by Samuel Solly, F. R. S.

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19. Obstetric Tables, by G. Spratt, Surgeon Accoucheur.

20. On the Causes and Treatment of Abortion and Sterility, by James Whitehead, F. R. C. S.

21. Man and his Motives, by George Moore, M. D.

22. Lectures on Venereal and other Diseases, by M. Ricord. Reported and translated by Victor De Meric, M. D.

23. The Maternal Management of Children in Health and Disease, by Thomas Bull, M. D.

24. Noad's Chemical Analysis. With additions by Campbell Morfit.

25. Barth and Roger's Manual of Auscultation and Percussion. With additions by F. G. Smith, M. D.

26. Hints towards the Formation of a more Comprehensive Theory of Life, by S. S. Coleridge. Edited by S. B. Watson, M. D.

27. A practical Treatise on Advanced Life, by G. E. Day, M. D.

28. A Dictionary of Practical Medicine, by James Copland, M. D. Edited, with additions, by Charles A. Lee, M. D.

This massive structure of professional industry rises, with slow yet majestic proportions, before the admiring eye. Professor Lee has performed a useful task, in bringing before the American profession, in a much cheaper form than that of the English edition, this great work.

29. Practical Pharmacy, by F. Mohr and S. Redwood. Edited by Professor Wm. Procter, Jr., of Phila. Coll. of Pharm.

30. Elements of Anatomy, by Jones Quain. Edited by Richard Quain, F. R. S., and Wm. Sharpey, M. D. Revised, with notes and additions, by Joseph Leidy, M. D.

31. Principles and Practice of Modern Surgery, by Robert Druitt. Edited by F. W. Sargent, M. D.

32. The Library of Practical Medicine, furnished by the Massachusetts Medical Society to its Fellows, and comprising a number of valuable works; such as Smith and Tweedie on Fever; Louis on Typhoid Fever; Copland's Dictionary; Mackenzie on Diseases of the Eye, &c. The last work republished (which was distributed last May) was Evanson and Maunsell on Diseases of Children.

33. Medical Formulary, by Benjamin Ellis, M. D. Improved and enlarged by Samuel George Morton, M. D.

34. Practice of Surgery, by James Miller, F. R. S. E.

35. A System of Practical Surgery, by Wm. Ferguson, F. R. S. E.

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VI. ALL SUCH MEASURES AS MAY BE DEEMED ADVISABLE FOR ENCOURAGING AND MAINTAINING A NATIONAL LITERATURE OF OUR OWN.

In addition to those general measures which form the basis of scientific knowledge, whence flow the streams of our literature, there are some special modes of encouraging and maintaining the writing ability of our profession, to which we solicit attention.

It is a ready concession, universally made upon the bare suggestion of the subject, that the intellectual powers must be disciplined and trained to authorship whilst the mind is undergoing collegiate culture. The pen must be familiar to the hand, ere the fingers contract any of the rigid immobility of age; for if not early familiar to their endeared embrace, it will yield a very reluctant tribute to science, even though the prolific brain be earnest and eager that others may participate in its slowly acquired wealth.

Education—elementary and classical—is the first great step. The faculties must be shaped and moulded, made flexible and elastic, habituated to systematic exertion, and rendered docile and obedient to the authority of truth, by an early, protracted, and thorough discipline.

Private tutorship should be regarded in a light of higher responsibility than that most generally entertained. Before a medical practitioner becomes preceptor to a young man who offers himself as a student, he should be assured that his preliminary education is of such a character as to fit him for the reception of that varied knowledge which he must acquire to qualify himself for the practice of medicine. And, after he is received under private tutorship, his studies are to be so directed, and his time so engrossed as may best compass the great end in view—to make a sound and skillful practitioner. But to prosecute his inquiries to the most available extent, to secure the greatest advantage from reading the best authorities, and from seeing cases of disease, the pen must be put in his hand. Why is it that such a vast amount of reading goes to absolute waste? Because the train of thought, or the presentation of facts, or the aptness of illustration, is not fixed, ingrained, inwoven, with the very substance and being of the mind. The fleeting succession of ideas which pass through the mind in the perusal of books needs to be often arrested by the act of composition, otherwise no permanent accumulation takes place, but, like a shadow which flits over the earth, 'tis gone ere we notice its outlines.

We all, in our retrospect of the days of medical pupilage, have in

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full remembrance, the total inutility of much that was read. Frequent examinations of the student by the preceptor, on what he has been reading, will aid greatly in giving fixedness and permanence, distinctness and familiarity, to the thoughts conveyed by the author; but the act of writing, still more radicates the impressions, and renders the mind more permanently retentive of its acquisitions.

The preceptor should require written communications from the student, both on the subject matter discussed in the books put in his hands, and on the cases of disease he may have an opportunity of seeing. Thus, a facility of writing would be acquired, which the subsequent years of an active professional life would not entirely extinguish, but which, even amidst the daily toils of an harassing business, could be sustained. Indeed, this aptitude for writing, when once acquired, always opens a sanctuary to the wearied mind, to which it may retreat, and thence gather refreshment amid the toils of life.

The formation of medical societies is another measure well adapted to encourage and sustain a national literature. In such association, the love of science, the desire of improvement, and the spirit of an honourable emulation are awakened, and fanned into a generous glow. Minds made kindred to each other by similarity of pursuit, and by the inspiring breath of scientific ardour, never meet and interchange thought without mutual participation of benefit. And the lights thus kindled never go out. They will shed their lustre over the profession.

It is a matter of history, that from these associations have emanated many valuable contributions to medical literature. If our State Medical Societies were to adopt the measure generally, of offering an annual prize for the best essay on some endemic disease, or indigenous article of the Materia Medica, or any other theme within the range of medical science, our medical practitioners might be urged to cultivate to a greater degree the faculty of writing.

Our medical periodicals are not patronized to an extent sufficient to justify them in offering remuneration for the contributions published. This encouragement is given by one of the principal medical journals, perhaps by others; the reward for the articles found worthy of publication, is double that of pecuniary recompense, for some degree of laudable notoriety is thus acquired.

Our medical schools in two distinct ways of direct encouragement might co-operate in this enterprise. First, by the offer of the bestowal of some token of respect, upon those candidates for the doc-

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torate who should write the best inaugural thesis; especially, when the subject of the dissertation is experimental.

The Faculties of our medical schools should, themselves, present a good example and model of writing, on subjects pertaining to the science which it is their privilege, honour, and advantage to teach. They should not expend their strength in an annual introductory, nor "sink down and seek repair" in a whole year's abstinence from the labours of the pen, after such a strenuous effort, but, ever and anon, keep the profession awake to their professional vitality, by sending out some substantial proofs of the interest they take in the progress of that cause, on the reality and importance of which they have all their claims to professional consideration grounded.

Within the bounds of the United States there are to be found some large collections of medical literature. As the result of our inquiries on this head, we shall state, in round sums, the number of books which have been accumulated in the principal medical libraries in different parts of the country.

The largest medical library in our country is that of the Pennsylvania Hospital. It was commenced by that benevolent and enlightened man, and popular physician, Dr. John Fothergill, of London. The first medical book which he presented the institution, July 27th, 1762, through Wm. Logan, lately returned from London, was, *An Experimental History of the Materia Medica*, by Wm. Lewis, F. R. S. It was "given for the benefit of young students in physic, who may attend under the direction of the physicians." Shortly afterwards, Fothergill made another donation to the hospital, "of eighteen views of various parts of the human body, in crayons, framed and glazed—three cases of anatomical castings, and one case containing a skeleton and fœtus."

In 1763, *six pistoles* were required as a gratuity from each student attending the house. The money thence arising, the managers of the hospital, by a formal vote, appropriated "to the founding a medical library in said hospital, which," say they, "will tend greatly to the advantage of the pupils, and the honour of the institution." A noble and considerate act, which was the initial of a magnificent result, for now that library numbers over ten thousand volumes. In this large collection are many works of ancient authorship, and of expensive plates, illustrative of the different branches of medical science.

There is ready access, on the payment of a certain sum, to this vast depository of medical literature. The books, with the exception

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of the tables, plates, and some very rare works, are taken out to be read at home by those who hold the privilege; and the exceptional works may be had by a written order from a member of the library committee. To render this valuable library still more useful, the managers have lately fitted up a large and commodious room for its reception, in which every accommodation is afforded for a careful consultation of the authorities, so profusely ranged on every side.

The library of the medical department of Transylvania University has upwards of seven thousand volumes. That of the medical department of the University of Louisville upwards of three thousand; of the Medical College of Ohio two thousand; of the Medical and Chirurgical Faculty of Maryland twelve hundred; of the New York Hospital five thousand three hundred and forty-five; of the Medical Library of Harvard College seventeen hundred and sixty-nine, and of the Cambridge Medical School (Boston) twelve hundred. Connected with the Boston Athenæum are about three thousand medical volumes. The library of the Medical School of Maine contains three thousand four hundred volumes. In other cities of the country there are public medical libraries of less size than those above named. And in some of our large cities, and of Boston especially we speak more advisedly, there are gentlemen, high in the profession, who possess, in their private libraries, more than five thousand volumes.

Now, in view of these facts, what is the inference which urges itself on the mind of every one who desires to see the literature of the profession, not only in a hopeful state of advancement, but its benefits diffused to the greatest extent among physicians? Many aspiring, studiously inclined, young physicians of our country, are too straitened in their pecuniary resources to purchase even all the new works which issue from the American press, and as to obtaining the foreign works, and those which belong to the former periods of medicine, that is not a matter even of distant expectation.

What then suggests itself as the most advantageous measure which can be adopted to secure the desirable results which will spring from opening up these great treasure-houses of medical knowledge to the profession? First. Let the profession in every principal city have a public medical library, with the same arrangements which obtain in the best regulated libraries of the country.

Where medical schools exist, their faculty and trustees should set a noble example of generous freedom from a narrow, calculating

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policy, by making their libraries accessible to the whole profession. A moderate sum, annually, might be required from each student and practitioner who desired to avail himself of the library. The periodical medical literature of the country, with the reprints of foreign medical journals, should make a part of the libraries, and might be read in the library-room of the college, whilst the other works, except tables and plates, should be given out.

There is another measure calculated, we think, to encourage and maintain our medical literature. It is the establishment of one or more journals on the basis of a distinct department of medical science. There is a just complaint, often uttered, that our journals are, in their selected matter, but echoes of each other; that they represent, in this particular, a lengthened chain of telegraphic wire —the ideas set in motion at one end of the train are transmitted throughout its ramifications.

If a journal devoted to selections from French and German contributions to medical literature, could be established, edited by some of our ripe medical scholars, we feel confident that it would succeed. Or if one devoted to Physiology and Pathology, or to either of the three practical branches, Practice of Medicine, Surgery, or Midwifery, was commenced, final success would, we think, crown the enterprise.

There is an additional measure which the committee would submit to the consideration of this enlightened body, which would redound greatly, as your committee believe, to the advancement of a national medical literature of our own. It is the appointment of a board or committee of publication, at Philadelphia or New York, whose duty it should be to receive, and carefully read, the original or translated works which American writers might offer, and to have them published under the superintendence of the board or committee. Should such a measure be adopted by this Association, we are firmly persuaded that great advantages would accrue. Medical authorship, except in our eastern cities, and principally in cases of already acquired reputation of the authors as writers or teachers, is not at all encouraged among us, except in the way of acquiring a favourable position in the profession. But this statement does not cover the whole ground; where elaborate productions have been published in the west on medical subjects, their publication has brought their writers into a large outlay of means, and from the fact stated by Professor Lee, already quoted in a former part of this report, it is a severe reflection upon our medical literature, that a scientific work,

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left in manuscript by the gifted Forry, yet remains, the sealed production of a great mind in our profession, because no one will undertake its publication.

This board, or committee of publication, should have funds, raised by subscription, after the manner of the Sydenham Society of England, placed in its hands. Besides original works, this board could be authorized by the Association to recommend to our principal publishing houses such foreign works as might be deemed of a character to entitle them to the favour of the American medical profession.

Our physicians look to the recommendation by the editorship of a known American author or teacher, before they are willing to make the purchase of a recently issued book, coming from a distant source, the author of which is not known to them as one entitled to consideration.

Indulging the hope that the Association may deem these suggestions of sufficient importance to take them under advisement, we would respectfully propose for adoption the following resolution:—

Resolved, That a committee of three be appointed to take into consideration the measures recommended in this Report, for the promotion of our National Medical Literature, with instructions to report at the next annual meeting of the Association.

JOHN P. HARRISON,
Chairman.

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G.

REPORT OF THE COMMITTEE ON PUBLICATION.

The Committee on Publication respectfully

REPORT,

THAT, immediately after their appointment, they took measures which they believed would secure the early publication of the Transactions of the Association, at their meeting in Baltimore. Unexpected delays, however, occurred, by the loss of proof-sheets, in their transmission to and from authors; and particularly by the failure of the individual who executed the coloured plates to furnish them at the time contracted. But for this last circumstance, which delayed the completion of the volume two months, it would have been published in the latter end of July. When the time required to pass a volume of upwards of four hundred pages through the press, to execute coloured plates, to make out index, &c. &c., are considered, the committee, it is hoped, will not be considered to have been negligent of their duties.

The number of copies of the volume printed was 1500.

Of these, there have been delivered to members, and to societies represented in the Association, for their members	464
Sold by booksellers	61
Presented to societies, public libraries, and editors of journals	84
Remaining on hand	891
	1500

The entire cost of the volume was $916 46.

Of the volume of Proceedings of the Conventions of 1846–47, there were on hand, at the last report, eight hundred copies. Three hundred of these were distributed to the delegates to the meeting in

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Baltimore, by resolution of the Association, leaving five hundred on hand.

The committee are required, by the constitution, to report "the probable amount of the assessment to be laid on each member of the Association, for covering its annual expenditures."

At this early period of the session, when the amount of matter which will be ordered for publication has not yet been decided, and the other expenses to be incurred are unknown, it is impossible to make any very close estimate as to what will be the expenditures for the next year.

Another difficulty also arises from the indefiniteness of the expression "each member of the Association," in the quotation from the constitution just made. If it includes all the permanent members of the Association, as well as the delegates, the assessment may be smaller than if it is restricted to the latter only. As it will be difficult, however, to collect any assessment from permanent members not present at the meetings, scattered, as they are, over the wide extent of our country,—and as a sufficient sum may be obtained without including them, or imposing a burdensome tax upon the delegates, the committee will offer for the consideration of the Association resolutions to that effect.

The number of members who have paid the assessment for 1848 is 224.

Of these, 136	paid	$3	00
85	"	5	00
1	"	4	00
1	"	5	50
1	"	6	00

46 have not paid the assessment.

Of the delegates of 1847, thirty-six have not paid the assessment, and three who were delegates both in 1847 and 1848, are delinquent. The committee would suggest for the consideration of the Association, whether such delegates as have neglected to pay the assessment have not failed to conform to the regulations of the constitution; and should, therefore, not be considered as permanent members.

As the number of delegates to the present meeting will be larger than at the last, and as the expenses will probably not be much greater, the committee recommend, in accordance with these views, the adoption of the following resolutions:—

Resolved, That any delegate who is in arrears for an annual assessment, shall not be considered as a permanent member.

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Resolved, That the annual assessment for the present year shall be three dollars.

Resolved, That those delegates who pay the assessment shall be entitled to one copy of the Transactions for the present year, and that the payment of two dollars, in addition, shall entitle them to three copies of the same.

Resolved, That permanent members shall be entitled to one copy of the Transactions for the present year, on the payment of two dollars; and three copies, on the payment of five dollars.

Resolved, That societies which are represented at this meeting, shall be entitled to copies, for their members, at the rame rates at which they are furnished to delegates, viz.: three copies for five dollars.

Annexed is the Treasurer's Report, from which it will be perceived that the balance on hand is $295 86.

The committee cannot close this report without acknowledging their obligations to the Messrs. Lea & Blanchard, of Philadelphia, for useful advice in the publication of the Transactions, and for distributing, free of charge, copies of the Transactions to the members of the Association, and those presented to societies, editors of journals, &c.

ISAAC HAYS,
ALFRED STILLÉ,
D. FRANCIS CONDIE,
F. I. BOWDITCH.

BOSTON, *May* 1, 1849.

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G.—1.

TREASURER'S REPORT.

American Medical Association in Account with Isaac Hays, Treasurer.

Dr.		
Paid for composition, press work, and paper, for Vol. I. of Transactions - - -	$653 94	
" " folding and binding do. - - -	139 52	
" " engraving wood cuts for do. - -	38 00	
" " drawing lithographic plates, printing, paper, and colouring for do. - -	85 00	
		$916 46
Paid discount on notes, for postage, blank books, and freight - - - - -		15 15
Balance on hand April 26, 1849 - - -		295 86
		$1227 47
Cr.		
Balance on hand May, 1848 - - - -	$171 10	
Received from members' assessment, for 1848, and for Transactions - - - -	853 50	
Received for assessment for 1847 - - -	6 00	
Received from medical societies for Transactions	96 66	
Received from Lea & Blanchard for do.	100 21	
		$1227 47

ISAAC HAYS,
Treasurer Am. Med. Ass.

Philadelphia, *April 26th*, 1849.

The above account has been examined and found correct.

ALFRED STILLÉ,
D. FRANCIS CONDIE,

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G.—2.

List of Delegates who have paid the Assessment for 1848, *arranged according to States.*

NEW HAMPSHIRE.

Jas. B. Abbott	$3 00	Albert Smith	$3 00
Jas. Batcheller	3 00	George B. Twitchell	5 00
Josiah Crosby	3 00	Peter P. Woodbury	3 00
Chas. P. Gage	3 00		

VERMONT.

E. S. Carr	3 00	Horace Hatch	3 00
E. Cushman	3 00	W. R. Ranney	3 00

MASSACHUSETTS.

Z. B. Adams	3 00	Oliver W. Holmes	5 00
Stephen Batcheller	3 00	A. L. Peirson	3 00
H. I. Bowditch	3 00	Joseph Reynolds	3 00
Josiah Curtis	3 00	Paul Spooner	5 00
J. C. Dalton	3 00	C. H. Stedman	3 00
Edward Flint	3 00	John Ware	5 00
John Green	5 00	John C. Warren	3 00
Enoch Hale	5 00	Stephen W. Williams	3 00

RHODE ISLAND.

Ezekiel Fowler	3 00	Joseph Mauran	5 00
David King	3 00	Usher Parsons	5 00

CONNECTICUT.

Fordyce B. Barker	3 00	R. M. Fowler	3 00
S. B. Beresford	3 00	J. Hammond	3 00
Norman Brigham	3 00	N. B. Ives	5 00
Joel Canfield	3 00	P. A. Jewett	5 00

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Jonathan Knight	$5 00	Richard Warner	$3 00
M. Peters	3 00	Archibald Welch	3 00
G. L. Platt	3 00	A. A. Wright	3 00

NEW YORK.

J. G. Adams	3 00	John McCall	3 00
E. L. Beadle	3 00	Willard Parker	5 00
G. W. Bradford	5 00	J. B. Pierce	5 00
Thomas C. Brinsmade	5 50	Alfred C. Post	5 00
Gurdon Buck, Jr.	5 00	John Punnett	5 00
Bryant Burwell	5 00	Meredith D. Reese	3 00
Edson Carr	3 00	Lewis A. Sayre	3 00
Thomas F. Cock	3 00	Avery J. Skilton	5 00
H. S. Downs	3 00	Joseph M. Smith	3 00
John W. Francis	5 00	A. H. Stevens	5 00
C. R. Gilman	3 00	F. Campbell Stewart	5 00
H. Green	3 00	Arthur B. Stout	3 00
F. H. Hamilton	5 00	John A. Swett	5 00
Frederick Hyde	3 00	J. R. Van Kleek	3 00
J. H. Jerome	3 00	John Watson	5 00
Harvey Jewett	3 00	Jas. R. Wood	5 00
Jared Linsly	3 00		

NEW JERSEY.

Joseph Fithian	3 00	S. H. Pennington	3 00
Quinton Gibbon	3 00	T. J. Saunders	3 00
Job Haines	5 00	O. H. Taylor	6 00
T. E. Hunt	3 00		

PENNSYLVANIA.

W. Ashmead	3 00	Meredith Clymer	3 00
John L. Atlee	3 00	D. F. Condie	5 00
C. L. Baker	5 00	S. Duffield	3 00
John Bell	5 00	J. A. Ehler	5 00
John B. Biddle	5 00	G. Emerson	3 00
Henry Bond	3 00	George Fox	5 00
J. Bryan	3 00	W. W. Gerhard	3 00
F. S. Burrowes	3 00	W. R. Grant	5 00
Joseph Carson	3 00	J. H. Handy	3 00
Nathaniel Chapman	5 00	S. H. Harry	3 00

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N. L. Hatfield	$3 00	John Neill	$5 00
Isaac Hays	5 00	G. W. Norris	5 00
H. L. Hodge	5 00	W. Byrd Page	5 00
Samuel Humes	3 00	G. W. Patterson	3 00
R. M. Huston	5 00	J. Rodman Paul	5 00
Prof. Samuel Jackson	5 00	Lewis Rodman	3 00
Samuel Jackson	3 00	Alfred Stillé	5 00
Levin S. Joynes	3 00	R. H. Townsend	3 00
J. W. Kerr	3 00	Isaac R. Walker	3 00
G. B. Kerfoot	5 00	J. Wiltbank	5 00
H. F. Leib	3 00	George B. Wood	5 00
W. McIlvain	3 00	Wilmer Worthington	5 00
F. A. Muhlenberg	3 00	T. H. Yardley	3 00

DELAWARE.

H. F. Askew	3 00	Isaac Jump	3 00
Lewis P. Bush	3 00	J. D. Perkins	3 00
James Couper	5 00		

MARYLAND.

A. Alexander	3 00	Geo. S. Gibson	3 00
James Armitage	5 00	J. P. Gunn	3 00
T. C. Atkinson	3 00	C. A. Harris	5 00
M. S. Baer	3 00	W. Hemsley	5 00
Alfred Baker	3 00	F. E. B. Hintze	5 00
W. H. Baxley	3 00	Joel Hopkins	4 00
T. E. Bond, Jr.	5 00	H. G. Jameson, Sr.	3 00
J. Bordley	5 00	S. M. Jenkins	5 00
J. H. Briscoe	3 00	W. Kinney, Jr.	5 00
T. H. Buckler	5 00	W. T. Leonard	3 00
Samuel Chew	3 00	J. A. Lockwood, U. S. N.	3 00
S. R. Clarke	3 00	G. W. Miltenberger	3 00
J. I. Cohen	3 00	N. Pinckney, U. S. N.	5 00
C. C. Cox	3 00	William Power	5 00
W. M. Dallam	3 00	G. C. M. Roberts	5 00
W. H. Davis	3 00	T. Sappington	3 00
F. Donaldson	3 00	Nathan R. Smith	5 00
Lloyd Dorsey,	3 00	R. S. Steuart	5 00
A. F. Dulin	3 00	W. H. Stokes	3 00
J. Fonerden	3 00	J. N. Teackle	3 00

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E. W. Theobald	$3 00	W. Williams	$3 00
R. H. Thomas	5 00	J. M. Wood, U. S. N.	5 00
Samuel Tyler	5 00	Peregrine Wroth	3 00
J. L. Warfield	3 00	John L. Yeates	3 00
J. L. Webster	3 00		

DISTRICT OF COLUMBIA.

Cornelius Boyle	3 00	Grafton Tyler	3 00
W. P. Johnson	3 00	N. Young	3 00
J. M. Thomas	3 00		

VIRGINIA.

W. J. Bates	3 00	H. H. McGuire	5 00
J. F. Carmichael	5 00	S. W. McElhenny	3 00
G. Lane Corbin	3 00	R. Randolph	5 00
Henry Howard	3 00	Geo. L. Upshur	5 00
H. D. Magill	5 00	B. R. Wellford	5 00

SOUTH CAROLINA.

S. W. Barker	5 00	P. C. Gaillard	5 00
Edward Elfe	3 00		

GEORGIA.

Richard D. Arnold	5 00	Jos. A. Eve	5 00
Paul F. Eve	5 00		

LOUISIANA.

E. H. Barton	5 00

MISSOURI.

T. Reyburn	3 00

ILLINOIS.

W. G. Edwards	3 00	R. Rouse	5 00
J. B. Herrick	5 00		

INDIANA.

M. M. Latta	5 00	A. B. Shipman	3 00

KENTUCKY.

L. P. Yandell	5 00

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TENNESSEE.

B. W. Avent	$3 00

OHIO.

W. M. Awl	3 00	R. L. Howard	$3 00
J. J. Delamater	3 00	W. Judkins	5 00
G. Fries	3 00	S. M. Smith	3 00
E. Gaston	5 00	J. F. White	3 00
J. P. Harrison	5 00		

NOTE.—Several delegates have paid their assessment for 1848, since this Report was drawn up. Their names will be reported next year.

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H.

FIRST REPORT OF THE COMMITTEE ON PUBLIC HYGIENE OF THE AMERICAN MEDICAL ASSOCIATION.

THE Committee on Public Hygiene, would respectfully report:—

That immediately upon their organization, its members determined to devote themselves to specific hygienic inquiries, connected with their various residences, in order that they might be embodied in one collection, and thus furnish authentic data for future research on the highly important subject about to occupy their attention. In order to obtain greater definiteness, the chairman of the committee was directed to indicate to each member such subjects as it was thought most advisable to elucidate at this time, and likewise, to prepare a series of questions for distribution. This course became absolutely necessary, from the peculiarity of the information sought by the committee, which differed materially from that required by any other committee of the Association. To them, the vast field of medical literature was open, and it became their duty to gather valuable materials from this abundant harvest. The facts required by the Committee on Hygiene, on the contrary, were as yet, for the most part, unrecorded; books were silent on the subject; and the data which they sought to possess themselves of, were to flow from careful personal observations. How far the committee has succeeded in answering the ends for which it was created, and in placing on record these new contributions to science, it leaves for the Association to determine.

The principal inquiries of the committee have been directed to the effect produced on the inhabitants by residence in large towns, the results of which are to be found embodied in the several accompanying reports of its members. In all towns, however, whether large or small, which fell under the observation of the members of the committee, certain causes were invariably found to be in operation, to a greater or less extent, tending to the destruction of human life, and producing a greater mortality than in the adjacent country dis-

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trict. Among these, deficient drainage, street cleaning, supply of water, and ventilation; together with improperly constructed houses, and the various kinds of nuisances incident to populous places, occupy prominent positions.

DRAINAGE.

One of the most important duties devolving upon the authorities of populous towns, is to devise means of effectually getting rid of the filth, which necessarily and rapidly accumulates, in and about the dwellings of its inhabitants; and for this purpose sewers unquestionably present the most efficient means at their disposal. The committee would here remark, that nothing is more detrimental to public health than the error, not unfrequently entertained by municipal authorities, that, where the surface drainage is good, it supersedes the necessity for under-ground drainage. The main purpose of surface drainage, is *to remove moisture, and not refuse animal and vegetable matter*, for which purpose scavenging and sewers are required. Sewers bear an intimate relation to the streets of a city under which they are usually built, and receive from the houses along their sides, by branch drains, not only the water that collects within them, and would otherwise become stagnant, but likewise those unhealthy emanations, and refuse materials, which, if not thus disposed of, would inevitably become sources of disease. They are subterranean canals, traversed by water, holding various unhealthy substances in solution, and possess an atmosphere peculiar to themselves: usually highly charged with ammoniacal and sulphuretted hydrogen gases. When properly constructed, they are among the most efficient agents within our reach for promoting health, but when improperly built or neglected, they are in the highest degree insalubrious. It is not alone necessary, therefore, that subterranean passages should be built, to carry off the refuse matter of a populous place, in order to insure its healthiness, but that they should be constructed in such a manner, as to perform their duty efficiently at first, and afterwards be constantly kept under the watchful vigilance of proper officers.

To answer this end, a system of sewerage must be adopted, which will collect the water that falls in the form of rain, and that derived from springs, from the entire area of the town, to be drained; for, it is by means of the flow of water, that the sewers are enabled to carry off the decomposing materials, which find their way into them. It need hardly be said that educated engineers are the only

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persons competent to direct the execution of these important works. If uniformity be observed in the inclinations given to the entire drained district, but a very slight current is required to prevent the accumulation of deposits within the sewers; more especially if, as is generally the case in sewers, many small currents unite to form a larger one; because the united currents obtain a greater impetuosity over the same inclination, and sweep away the deposits with greater certainty than where they flow through separate channels. The deposits will be much more efficiently removed if the flow of water be over an inverted arch, than a flat bottom. It is highly important to prevent the formation of a deposit in the bottom of a sewer; when this does occur, it very soon becomes hardened to such a degree as to exclude the hope of its removal without extraordinary means. The dam thus made aids in the collection of fresh accumulations of those matters, which seek the most depending part of the current until not only the sewer in which the stoppage occurs, but those leading into it, are loaded with offensive accumulations, or entirely choked up. This difficulty is much more likely to occur in a flat-bottomed sewer, where the force of the current is diffused, than in one with an inverted arch, where its power is concentrated. Private drains from houses are often constructed of brick with little mortar at their bottom, in order to allow the water of the soil around them to penetrate their interior. In drains of this sort, the water is as likely to flow out as in; and, consequently, however well they may be built in other respects, it is impossible to maintain a current through them. The solid matters soon accumulate, and in a short time they become choked up. The committee are desirous of calling the attention of the Association to the necessity of maintaining currents of water within sewers, because they are of the impression that the entire filth of a town, under an extended system of sewerage, is dependent upon an adequate supply of water for its removal; and that, whenever this supply is deficient, accumulations must necessarily occur within the sewers.

Upon no subject within their jurisdiction have the municipal authorities of our populous places differed more widely from each other than in their plans of drainage; as well in the character of the works constructed by them as in their extent. The aggregate sewerage in Boston is about twenty-five miles; in Philadelphia, about eleven and three-fourths miles; while in Baltimore, it is *but little more than one mile.* New Orleans, which is remarkably situated, fifteen feet below the Mississippi river, is entirely de-

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pendent upon surface drainage, as well as Louisville, Cincinnati, and indeed most of the towns of the United States. The bills of mortality of these different places, have not heretofore been kept in such a manner as to enable comparisons to be made between sewered districts and those which are without them. Could such results be obtained, the committee are well assured that they would present such facts, in relation to the high mortality of non-sewered districts, as would startle the legislators of our cities from their slumbers, and induce the rapid extension of these works to every portion of their respective towns. It is to be hoped that the day is not far distant, when a town without sewerage will be unknown in the United States.

STREET CLEANSING.

It is of the first importance to a city, that its streets should be laid out in such a manner, and paved with such materials, as to facilitate the discharge of its surface water; and this becomes the more imperious, where surface drainage is the only one in use. It is well known, that more malarial disease prevails in the suburbs of a town than in the town itself, or the adjacent country. This is doubtless due in a great measure to the innumerable pools of water, which a defectively drained surface allows to accumulate. The pavement for streets in almost general use in the United States, is laid with round paving stones, usually found in abundance in their immediate vicinity. Although this pavement is greatly inferior to cubical blocks of granite, yet, under the improved system of laying the stones now in use, it furnishes an excellent substitute for them.

The necessity for the removal of the refuse which is constantly accumulating in streets is so obvious, and so generally admitted, that no argument appears to be necessary to establish its claim to public favour. But while the authorities of every town in the United States, however inconsiderable its size, profess to rank this among their most important duties; but few places can boast of a thorough and efficient system of scavenging. The facts developed by the special reports of the members of the committee, show that, in our largest cities, the principal streets are not cleaned oftener than twice each week, and frequently but once. The smaller streets, although frequently inhabited by a denser population, are seldom visited by the street cleaners oftener than once or twice a month; and the courts are seldom or never cleaned, except when reported as nui-

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sances. The mode of cleansing is likewise exceedingly superficial, and consists in removing the loose particles upon the surface. For the want of proper economy in the disposition of the street manure, this defective system is kept up at a considerable expense; and all arguments in favour of the introduction of a more efficient one, are met by the disinclination to increase this already heavy tax. Now, in those cities in Europe, where great attention is paid to cleaning the streets, experience has demonstrated that the more effectual its scavenging, the less is the city charged with its expense. Edinburgh, whose streets, including the narrow alleys and courts, are thoroughly swept daily, is made to bear but a trifling portion of the expense.

In most towns, laws are enacted to prevent the inhabitants from depositing the refuse from their houses in the streets; but where no other means is offered to them to get rid of the offal, it must eventually find its way into them. This offal consists of decaying vegetable and animal matter, which, under the influence of exposure to the sun, is constantly sending forth, to unite with air breathed by the inhabitants, the most deleterious gases, which are not only offensive to the smell, but prejudicial to health. Of all the causes of disease in cities, there is none more extensive in its operations, or more fatal in its results, than the poisonous emanations arising from the decomposing refuse of articles used as food, and employed in the arts, which collect in large quantities, not only in the streets, but within the very habitations of the inhabitants of populous places.

Here are sources of disease clearly indicated, which are in operation in all of our towns, affecting the health and physical condition of their entire populations, but wasting their greatest fury upon the labouring classes, who are doomed to make their abode in the most unhealthy quarters. Much has been said in favour of disinfectants, and great reliance is placed on them in the prevention of epidemics, but there is no disinfectant for filth except its removal. So long as badly drained and filthy quarters are permitted to exist in a city, so long will it be scourged by fevers, and liable to the invasions of epidemics. The fuel is always ready gathered, and it requires but the application of the torch to set the fabric into a blaze. Medical men who are conversant with a city, can, with unerring certainty, point out the localities of fever, by their uncleanliness; and it is a fact, established by the history of every epidemic, including the late visitation of the cholera, that it usually makes its appear-

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ance, and commits its greatest ravages, in those uncleanly quarters, which are notoriously the permanent abodes of fever. In order to prevent this decomposition, the streets should be swept daily, including the narrow alleys and courts, which, indeed, demand greater attention than the more open thoroughfares; in addition to which, every facility should be offered to the inhabitants to get rid of the collections of the kitchen. Where none of these measures are taken, and where, in addition to the close, offensive air generated by the street collections, it is still further tainted by pig pens, overrunning privies, and stagnant water, it is scarcely a matter of surprise, that disease should be ever present, producing the degree of mortality revealed by our reports of interments.

WATER.

Pure water, like pure air, is so essential a requisite, that its presence is absolutely necessary to preserve human life. Indeed, its influence over the human organization is even greater than that of the atmosphere; for it has been abundantly proved, by too many examples, in our large cities, that life is enabled to maintain itself, while surrounded by a noxious and deleterious atmosphere; but it has yet to be shown that the same poisonous properties can be infused into water without immediately inducing serious disease.

But it is not only necessary that its quality should be good, but that its supply should be abundant in cities; where it is required for numberless purposes, other than an aliment; which could not be dispensed with, without great detriment to the comfort and morality of their inhabitants; among which may be enumerated domestic purposes, baths, washing streets, cleaning sewers, manufactories, and extinguishing fires.

Waiving the subject of an abundant supply of water for domestic purposes, as a question too self-evident to be discussed, the committee would call attention to the remarks already advanced in relation to sewers, and again urge the necessity for active currents of water through them, in order to avoid deposits. It must be constantly kept in mind that an absolute prerequisite for effectual drainage, both for the surface and sewers, is a copious supply of water, without which the best arranged structures would fail to effect this object.

Whenever the quantity of water furnished to a town is deficient, the heaviest burden of the evil must, from necessity, fall upon the

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poor. If there are any parts of a town which possess an unenviable reputation on account of bad drainage, consequent accumulations of filth, and excessive disease, they are invariably inhabited by the poor. The result of much observation on this subject has convinced the committee, that many of the evils, and much of the disease incident to poverty, may be relieved by copious and never-failing supplies of pure water. It would be a great mistake to imagine that the poor are incapable of estimating the advantages of pure water, or would not avail themselves of it. The experience of New York and Philadelphia, which are more abundantly supplied with water than any of the other cities in the United States, has established this point beyond controversy. The introduction of an abundant supply of water is so intimately connected with the health of a city, that the municipal authorities should rank this among the most important of their public duties. In connection with this matter, the committee are deeply impressed with the importance of confining the execution and management of such great works, as a supply of water, gas, and drainage, to the city authorities. The public welfare is too deeply interested in their faithful performance, safely to permit them to pass into the hands of incorporated companies; who, however high-minded they may be, look to them as sources of revenue, and not as objects of public good.

BUILDING AND VENTILATION.

The lungs of each individual are constantly penetrated by an atmosphere which momentarily exercises a healthy or unhealthy influence over the entire organization. The object of respiration, which is constant, is to introduce into the lungs, with a certain degree of force, a large quantity of air, which loses a portion of its oxygen, and receives in return a certain amount of carbonic acid gas. Now, when a large number of persons occupy an apartment the air of which undergoes but little change, the simple act of respiration converts the healthy into an unhealthy atmosphere. But it is not the change induced by respiration alone which vitiates the atmosphere. The body is always giving off other emanations, in the form of insensible perspiration and animal heat, whose effect on the air is strikingly prejudicial.

The insalubrity of the atmosphere of populous places, is dependent, however, upon much more powerful causes of vitiation, than those induced by respiration alone. Organic substances in a state of

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putrefaction, offensive odours from pig-sties, and uncovered inlets to sewers, humidity, and such an arrangement of the buildings as to prevent a change of air, and effectually cut off ventilation, are here the powerful promoters of its impurity. Those parts of a town, therefore, which are built up with innumerable courts and tortuous or narrow alleys, are permanent abodes of infection, and are constantly giving forth those noxious emanations, which not only poison the atmosphere in their immediate vicinity, but extend to a considerable distance into the better built and ventilated parts of the town. These emanations are the cause of much of the disease which is incident to poverty. Their immediate action is to induce febrile and asthenic affections; hence consumption, scrofula, and rheumatic and gastric affections, are their constant attendants.

If evils of such great magnitude are the necessary consequence of inattention to ventilation and building, it becomes one of the highest duties of city authorities to regulate the erection of houses with an eye to their prevention. Streets should be of a certain width, proportioned to the height of the houses, and always laid out at right angles, or at least so as to secure a free circulation of air through them. If the streets are narrow and the houses high, they will be damp, and, if too wide, liable to inconvenience from the heat of the sun. The houses upon their sides should be regulated so as to prevent an over crowding of population, which is very likely to occur where the proximity to business renders the ground valuable.

The ventilation of public schools is a subject of much importance, which is usually neglected, and which earnestly addresses itself to those having charge of them. For various facts connected with this subject, the committee would refer to special reports of its members.

The necessity for public squares, tastefully ornamented and planted with trees, cannot be too strongly urged upon public attention, as one of the most powerful correctives to a vitiated air within the reach of the inhabitants of a populous place.

NUISANCES.

Those nuisances which owe their origin to the subjects before enumerated, and which may be summed up in defective draining and cleaning, are unquestionably the most extensive in their operation; but there are others more confined in their character, and less palpable in their effects, which yet require a brief consideration. These consist in the various kinds of manufactories, butcheries, and public

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works, incident to towns, and almost always found in their midst. These may, by the discharge of noxious and acrid gases, be directly prejudicial to health; or, from the evolution of large quantities of black smoke and unpleasant odours discommode, without exercising a direct influence in the production of disease; hence, it has been customary to rank them in different classes, dependent upon their deleterious action.

Those establishments which are found to be most unhealthy, are the manufactories of the different kinds of powerful acids, as nitric, sulphuric, and hydrochloric. But a slight remove from these, are the manufactories of brass, chemicals, compounds of lead, and copper smelting works. All of these operate by loading the air with emanations eminently prejudicial to health, and not unfrequently to vegetation. In order to render them innoxious, chimneys of great height have often been erected, but without materially lessening their deleterious effects on the inhabitants surrounding them.

Next to these, stand gas works, butcheries, soap and candle factories, dyeing establishments, manufactories of the sulphates of zinc and iron, phosphorus, friction matches, and an innumerable number of others; some of which are injurious on account of the unhealthy gases they emit, while others are rather sources of discomfort than of immediate disease. Great diversity of opinion exists concerning the unhealthiness of gas works. It is admitted that, in the manufacture of gas, as well as in the refuse material left after its production, large quantities of sulphuretted hydrogen, and ammoniacal gases, are given off to the surrounding atmosphere, which are known to be eminent sources of disease. The theory has of late been agitated, and very ably advocated by Professor Gardner, of Hampden-Sydney College, that sulphuretted hydrogen gas is the cause of autumnal fever. It is no argument in favour of the healthiness of a manufactory, that the workmen enjoy an immunity from its evil consequences; because the fact is well established, that the human body can become accustomed to the effects of the most deleterious agencies, without apparent injury. The question is not whether the workmen immediately engaged are affected or not, but what are the causes of the high rates of mortality, which the large cities of the United States, in common with those of the rest of the world, exhibit. If the neighbourhood of manufactories are found to be more unhealthy than other places, it becomes the duty of every municipal body to interdict them in populous parts of the town, and this furnishes a very strong argument in favour of the corporate authority

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of a city immediately furnishing to its inhabitants a supply of gas, without the intervention of an incorporated company. The committee would earnestly urge the establishment of one general butchery, at a convenient distance from each town, as one of the most important sanitary measures it can adopt.

DISINFECTANTS.

Great reliance is placed by corporate authorities on the preventive power of certain substances to arrest the spread of diseases, which are *now* known to be more or less intimately connected with the presence of nuisances; hence, on the appearance of an epidemic, it is customary for them to recommend the free use of a class of agents termed *disinfectants*, as chloride of lime, fumes of nitrous acid, &c. The facts in our possession, in relation to the value of disinfectants, are exceedingly vague and unsatisfactory, and by no means warrant the reliance placed in them, over evils of such vast extent as the impurities of a populous place. The great source of infection is *putrefaction;* by preventing putrefaction, we are enabled to arrest infection; but no agent has yet been discovered sufficiently general in its operations to reach the putrefactive process eliminated from the numberless sources ever present in towns. Air, heat, and water, which are necessary to produce putrefaction, are nevertheless, in the laboratory of nature, the principal agents she employs as disinfectants. Chemical agents, on which most reliance is placed, are confined in their efficacy to a very small extent of surface, and are very uncertain in their operations. It is obvious that, in order to reach an evil, we must ascertain something of its nature. Now, in what consists the infection of typhus or yellow fever, or cholera? Is it a gas? If so, why does it confine itself to a particular locality of very limited extent, frequently being intercepted by a very narrow street? and if not a gaseous product, which is the generally received opinion, where is the evidence of its assuming any other form? But although disinfectants are not capable of arresting epidemic diseases, they are not altogether useless; confined within proper limits, their use is highly advantageous, not only in destroying fetid odours, but in some degree in restoring purity to the air. Their operation is necessarily confined, and their advantages consequently limited. The wards of hospitals, dwelling-houses, and privies, may derive advantage from their use, but surely no one would be visionary enough to think of disinfecting the unwholesome atmo-

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sphere of a populous city, by means of any chemical agency, however extensive, within his reach.

Among the various substances of this class which have of late obtained considerable celebrity, the solutions of chloride of zinc and nitrate of lead occupy a prominent position. A solution of the nitrate of lead, known as *Ledoyen's disinfecting fluid*, to be found in most of our towns, has probably a higher reputation than any other in use at this moment, although other combinations of nitric acid, as those with zinc and wood fibre, are advocated as possessing peculiar merits. The principal advantage of Ledoyen's fluid over others, is its power of removing an offensive smell, without substituting another in its stead. The committee, however, have not learned of any case in which the application of any agent of this class has done more than to arrest putrefaction *temporarily*. So long as the cause exists, so long will disease be generated; and while the committee do not hesitate to recommend the use of disinfectants, they would at the same time caution the public authorities and inhabitants of populous towns against placing reliance on them to the exclusion of the strictest measures for removing the sources of disease, which are found to reside in uncleanliness, and impurity of the atmosphere. If they usurp the place of these sanitary measures, which can alone render a town salubrious, so far from being advantageous their use will be eminently injurious.

CONCLUDING REMARKS.

With these general observations your committee will introduce the special reports from individual members, embracing an account of the sanitary condition of the cities of Portland, Concord, Boston, Lowell, New York, Philadelphia, Baltimore, Charleston, New Orleans, and Louisville, so far as it may be developed by answers to the questions propounded in the circular issued by them.

They are aware, however, that the investigation into this interesting and almost unexplored region of medical inquiry, has but just commenced; and that their labours have accomplished little more than to open the way for its farther, and, as they hope, more successful prosecution. The subject they conceive to be one eminently congenial with the purposes of the Association, inasmuch as it has for its object the preservation of human life, and the removal of those causes of disease and death which it is in the power of legislation to eradicate, and to which the public mind must be directed by

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those medical bodies, whose philanthropic and honourable duty it is to preside like sentinels over the avenues by which human misery is admitted, and warn those whose scope of vision is less extended, of the approach of the evil, before it is too late to avoid it.

That the efforts of physicians, when directed to such objects, are not always abortive, is shown from the events which are now occurring around us. During the deliberations of this Association, the Commonwealth, in whose capital we are assembled, has manifested a regard for her citizens, and for the voice of her medical men, which is worthy of the imitation of her sister States, by the passage of a law for a sanitary survey of the State; and has thus obtained the high distinction of being the first State in the Union, to direct her legislation to a source so intimately connected with the welfare and happiness of mankind.

JAMES WYNNE,
ISAAC PARRISH,
L. P. YANDELL,
J. P. HARRISON,
E. H. BARTON,
P. C. GAILLARD,
JOSIAH CURTIS,
JOHN H. GRISCOM,
ALBERT SMITH,
CHARLES P. GAGE,
E. D. FENNER,
JOHN M. THOMAS.

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H.—1.

American Medical Association, Committee on Public Hygiene.

At the Annual Convention of the American Medical Association, held in Baltimore, in May, 1848, the following gentlemen were appointed a Committee on Public Hygiene:—

Drs. James Wynne, *Baltimore,*
Charles P. Gage, *Concord, N. H.,*
John M. Thomas, *Washington, D. C.*
Isaac Parrish, *Philadelphia,*
P. C. Gaillard, *Charleston, S. C.,*
L. P. Yandell, *Louisville, Ky.,*
J. P. Harrison, *Cincinnati, Ohio,*
Albert Smith. *Peterborough, N. H.,*
Josiah Curtis, *Lowell, Mass.,*
Edward H. Barton, *New Orleans,*
John H. Griscom, *New York,*
E. D. Fenner, *New Orleans.*

It is the purpose of this committee to make a sanitary report, embracing the principal cities in the United States; and with a view of facilitating their inquiries, you will greatly oblige by furnishing the member of the committee who requests the information of you, with answers to the following questions:—

1. What is the population of the town, and its position in relation to the surrounding country; what the geological formation of the country, the nature of its surface and subsoil, and the means of, or impediments to drainage, more especially within the town limits?

2. What is the character of the town in reference to health? What is the condition of its most unhealthy and crowded parts, where disease is supposed to be most prevalent; and to what causes are such diseases mainly attributable?

3. What are the arrangements for drainage? Is there a public survey of levels? Are the streets and alleys paved and laid out with

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a proper inclination for surface drainage; or are they defective in these particulars? Is the drainage effected by sewers or surface drainage, and is the mode adopted effective?

4. What is the mode and expense of cleansing the streets? Are the courts and alleys occupied by the poor cleaned, and how often? Where is the refuse from the houses deposited; and where is the street manure kept, and how disposed of?

5. What is the condition of the more densely populated parts of the town in respect to ventilation? Are the streets wide or narrow? Are courts and alleys built up, and closed at the end, and what is the character of the houses of the poor? What number of families occupy one house; how many persons live in one room, and what provision for ventilation? How are the houses warmed in winter?

6. What is the system of public schools, and its influence on health? At what ages are children received into them? What is the size of room, the number of occupants, time allotted to instruction, means afforded for exercise in the open air, and length of summer vacation?

7. What hospitals and dispensaries? How are the public buildings ventilated, as churches, &c.; and what provision for public grounds or squares?

8. From what source is the town supplied with water? What are its qualities, and is it abundant?

9. Are the municipal regulations on the above subjects effective or not?

By order of the committee.

JAMES WYNNE, *Chairman.*

BALTIMORE, *May*, 1848.

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H.—2.

Sanitary Report of Concord, N. H. By Charles P. Gage, M.D.

1. Concord, the capital of New Hampshire, with a population of eight thousand, and an area of forty thousand acres, lies on both sides of the Merrimack River, in N. lat. 43° 12′ 29″, and W. lon. 71° 29′, forty miles inland from Portsmouth, and seventy N. N. W. from Boston, Mass. By railroad, it communicates with the chief seaboard towns in New England, and, with a rich and extensive agricultural interior, abounding in mineral and manufacturing resources.

The country may be considered as divided into three parts: 1. The rich river alluvion, one mile in width, and extending from north to south eight miles, dividing the town into two nearly equal parts. 2. The diluvial deposit of granitic sand, forming level plains, wooded with low pines, and comprising nearly one-third of the area of the town. On this portion, there are but few inhabitants. 3. The oak land or hilly portion, rising into numerous swells of rich land, occupied by a temperate, industrious, and independent yeomanry.

Its geological formation is *granite*, covered with a diluvial detritus of granitic sand, in depth varying from ten to one hundred feet, through which a white, fine-grained granite shows itself, forming, in some localities, low ridges, in others, hills of considerable elevation. Granite Hill, one hundred feet in height and three miles in circumference, is a solid mass of as pure granite as can be found on the globe.

The soil on the river is a rich alluvium; on the plains it is a thin, gravelly loam, with a subsoil of sand. On the upland, the soil is a yellow loam, with a hard, gravelly subsoil.

2. The village extends a distance of two miles along the river, and is about one mile in width. Good natural facilities for drainage are afforded to nearly every part of the town, the highest point being one hundred and forty feet above the intervale. On the southwest margin of the town is a wet hollow, fed by springs, which

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may be kept dry by proper drains. There has been no public survey of levels; consequently, regard has not been had, in all instances, to proper inclination for surface drainage. The streets are not paved. There are no alleys. Drainage is effected partly by sewers, but mostly by surface drains, and is tolerably effective. The streets are very wide and straight, crossing each other at right angles, affording good ventilation.

3. The streets are cleansed at the expense of the persons living on them, and by the farmers in the vicinity. The refuse from the houses is generally deposited on the gardens, one being connected with almost every house.

There is, in a thickly settled part of the town, a slaughter-house, the stench from which, in summer, is so intolerable, as to compel the inhabitants in the neighborhood to keep their doors and windows closed for weeks together. It is now under indictment as a nuisance.

4. An abundant supply of good water is obtained from wells and springs in the town, and its immediate vicinity.

5. The houses are mostly of wood, two stories high, and designed for one family only. The houses are warmed by close stoves. The sleeping rooms are, as a general thing, too small. The public buildings, as well as private dwellings, are deficient in means of ventilation —doors and windows being the only arrangement for that purpose. The town is well provided with public squares.

6. Children are admitted into schools at four years of age. The sexes are never separated. In most districts, all are taught in the same room, by a single teacher. The rooms are about twenty-five feet by thirty feet, and nine feet high, with an average of thirty scholars in winter, and twenty-five in summer, in each. In the village, the school-rooms are larger, and more crowded. In one instance, a room $45 \times 56 \times 11$ feet, has seats for one hundred and eighty scholars, and sometimes they are all filled. In no instance is there any other mode of ventilation than the imperfect one of doors and windows. The scholars are taught in three different departments—reading and spelling in the first; reading, writing, arithmetic, and geography in the second; and all the higher English branches in the third.

During each of the secular days in the week, the school is taught three hours each forenoon, and three on each of the afternoons, except those of Wednesday and Saturday. The children have ample means for exercise in the open air. The summer vacation is from

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two to three weeks. The system is as little injurious as any, where the children are admitted so young, and where so little attention is paid to ventilation.

7. The town may be considered one of the healthiest in New England. By reference to Table I., it will be seen that, for the last ten years, the proportion of deaths has ranged from 1 in 101, to 1 in 50 of the whole population, and that the average of age is 29.71 years. It will be seen, too, that more than one-third of all the deaths are of children under ten years of age. This may be accounted for, in part, perhaps, by the fact that many mothers are obliged to wean their children very early, sometimes within the month, on account of a sore mouth peculiar to nursing women.

The poor are well housed, and supplied with the actual necessaries of life; through the charitable societies, they are in sickness well cared for, and supplied with many little conveniences and luxuries.

There is an asylum for the insane, and also an almshouse. There is no dispensary but the one connected with the State prison.

The effect of confinement and discipline in the N. H. State prison is salutary, partly from the compulsory abandonment of irregular and intemperate habits, and partly from the forced observance of strict hygienic rules. The inmates suffer from all prevailing diseases equally with the people in town, but all affections are more under the control of the physician, and treated with better success, on account of the habits of the patient, and his perfect submission. Masturbation is the prisoner's besetting sin, and often produces death.

Each prisoner eats and sleeps in a cell by himself. Each cell is constructed for one man only, with a grate in the upper part of the door to admit the fresh air, and an opening in the wall opposite, communicating with a flue leading to the outer air. This mode of ventilation is very defective, especially in summer, when the prisoners are kept in the cells from sunset until sunrise. It is regarded by them as their greatest punishment. The prisoners work in the large yard connected with the prison, or in large, well ventilated shops, from fifteen to thirty in each room.

The fact that the rate of mortality for thirty-six years, is only 1 to 79.21 of the whole number, shows that the prisoner enjoys an advantage over his more fortunate brethren without.

"What is the influence likely to be produced by the extensive introduction of tea and coffee into the diet of persons under the age of puberty?"

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Injurious; causing undue excitement of the vascular and nervous systems, and functional derangement of the digestive organs, particularly the liver. Tea acts more directly on the nervous system than coffee, partly, because almost all the tea in the market is poisoned by deleterious agents used in its preparation. Coffee has an almost immediate injurious effect on the liver; and, as that organ in the child is relatively larger than in the adult, it may be held that, the younger the child, the more pernicious the use of the article. Both tea and coffee tend to enervate and derange the whole system, and to produce an effeminate race.

"What is the influence of the substitution of the luxuries, tea and coffee, as a food, upon the health of the labouring classses?"

Injurious. They act as slow poisons. The effect is more perceptible, and more easily traced to the cause, than in the fashionable devotee, for its consequences are not modified by other deleterious agents and practices.

TABLE II. is a meteorological table kept by Abial Chandler, Esq., of Concord, and has been prepared with great care.

TABLE I.

Showing the number of deaths, ages, &c., in the town of Concord, N. H., for nine successive years, as drawn from records kept by Rev. Nathaniel Bouton, pastor of the First Church, in said town. Mr. Bouton has kept a record of deaths annually, in Concord, for the last 24 years; from which a table may be constructed showing the number who have deceased, time of death, age, proportion to the population, consumptives, inebriates, and those who have died by casualties.

Years.	Under 1 year.	Between 1 and 10.	10 and 20.	20 and 30.	30 and 40.	40 and 50.	50 and 60.	60 and 70.	70 and 80.	80 and 90.	90 and 100.	Over 100.	Total.	Estimated population.	Proportion to population.	Average of all.	Consumptives.
1839	13	18	2	7	2	5	1	1	8	3	3	1	65	4750	67.7	29.8	8
1840	11	11	3	9	7	5	8	6	9	4	0	0	73	4900	67.0	34.7	15
1841	12	18	3	6	7	4	6	4	6	5	1	0	72	5000	69.4	30.	13
1842	2	10	5	7	5	7	5	1	7	2	0	0	51	5200	101.0	35.6	13
1843	15	22	6	7	6	5	8	8	11	2	0	0	89	5500	61.	27.	18
1844	24	26	9	10	10	2	8	9	10	2	2	0	113	5700	50.	25.7	17
1845	20	15	3	16	13	7	4	4	8	6	2	0	98	6000	61.	30.1	18
1846	26	23	10	17	10	6	9	10	3	3	1	0	120	6800	56.6	23.5	20
1847	20	22	10	10	10	10	10	10	12	6	2	1	123	7500	61.	34.7	17
1848	27	19	11	15	9	7	3	7	9	5	0	1	113	8000	70.9	26.	14
Total	171	184	62	104	79	58	62	60	83	38	11	3	917		66.56	29.71	153

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TABLE II.

Meteorological Tables for Concord, N. H., for the years 1843, 1844, *and* 1845. *Lat.* 43° 12′ 29″. *Long.* 71° 29′.

1843.	Thermometer.				Barometer.			Prevailing wind.
Months.	Maximum.	Minimum.	Range.	Mean temp.	Maximum.	Minimum.	Range.	
January	50	— 20	70	28.48				N. W.
February	40	— 13	53	18.20	30.13	28.52	1.61	N. W.
March	45	3	42	25.80	30.05	28.90	1.15	N. W.
April	65	6	59	42.00	29.97	29.00	.97	N. E.
May	80	34	46	53.30	30.10	29.30	.80	N. W.
June	91	33	58	61.30	30.02	29.25	.77	N. W.
July	90	42	48	65.20	30.11	29.40	.71	N. W.
August	85	49	36	67.20	30.18	29.49	.69	N. W.
Septem.	85	34	51	58.80	30.13	29.44	.69	N. W.
October	65	26	39	44.50	29.93	29.20	.73	N. W.
Novem.	48	11	37	33.40	30.16	29.22	.94	N. W.
Decem.	43	1	42	28.4	30.20	29.06	1.14	N. W.
Year	91	— 20	111	43.88	30.18	28.52	1.66	N. W.
1844.								
January	40	— 15	55	15.2	30.01	28.68	1.33	N. W.
February	48	— 9	57	23.5	29 97	29.20	.77	N. W.
March	56	10	46	33.4	30.13	29.12	1.01	N. W.
April	72	7	65	47.8	30.46	29.43	1.03	E.
May	77	31	46	55.9	30.03	29.18	.85	N. W.
June	88	40	48	63.5	30.07	29.46	.61	N. W.
July	84	40	44	65.8	29.92	29.36	.56	N. W.
August	81	51	30	64.0	29.94	29.32	.62	N. W.
Septem.	84	32	52	58.0	30.14	29.01	1.13	N. W.
October	70	26	44	47.9	30.21	29.15	1.06	N. W.
Novem.	52	12	40	37.1	29.90	29.04	.86	N. W.
Decem.	48	— 5	53	28.4	30.20	28.75	1.45	N. W.
Year	88	— 15	103	45.04	30.46	28.68	1.78	N. W.
1845.								
January	46	0	46	24.1	30.10	29.02	1.18	N. W.
February	48	— 8	56	25.0	30.20	28.58	1.62	N. W.
March	61	0	61	34.4	30.03	29.02	1.01	N. W.
April	76	22	54	44.1	30.03	29.12	.91	N. W.
May	90	32	58	56.5	30.08	29.23	.85	N. W.
June	90	42	48	64.7	29.85	29.36	.49	N. W.
July	92	50	42	68.0	29.82	29.30	.52	N. W.
August	91	46	45	67.6	30.01	29.33	.68	N. W.
Septem.	80	31	49	55.4	30.01	29.09	.92	N. W.
October	73	16	57	47.1	30.15	29.36	.79	N. W.
Novem.	63	10	53	39.6	30.20	28 49	1.71	N. W.
Decem.	38	— 8	46	20.4	30.13	28.95	1.18	N. W.
Year	92	— 8	100	45.57	30.20	28.49	1.71	N. W.

Remarks.

The tables are made up from two daily observations, taken at about 15 minutes before sunrise, and at 2 o'clock P. M.

The thermometer is on the N. N. E. side of a dwelling-house, about four feet from the ground; it is liable to reflected heat in summer mornings till 9 or 10 o'clock, but after that time it is entirely free from it, or radiation.

The barometer hangs in a room without a fire at any time of year. It is of the common cistern kind. Inside diameter of the cistern 1.50 inch, outside diameter of the tube .42 inch, inside diameter of the tube .24 inch. There have been no corrections applied to the observations of it.

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H.—3.

Replies to Circular Letter. By Dr. J. T. GILMAN, of Portland, Maine.

Query 1*st.*—1. Portland, with a population of about twenty thousand, is situated on a peninsula at the western extremity of Casco Bay, and composes an area of about twenty-two hundred acres. It has railroad and water communication with an extensive interior, rich in agricultural, mineral, and manufacturing resources, to which it furnishes the nearest seaboard market.

2. Its geological formation is *metamorphic*, consisting of talcose or mica slate, with occasional beds charged with minute crystals of hornblende and laminæ of iron pyrites.

3. The soil is a yellow loam, with a subsoil principally of gravel.

4. The land, on which the town is built, rising gradually from the water sides, furnishes natural facilities, almost unequalled, for drainage.

Query 2*d.*—1. The town is, and has always been, unusually healthy.

2. There are no crowded or unhealthy parts, where disease is particularly prevalent.

Query 3*d.*—1. There are no arrangements for drainage by public authority.

2. There is a public survey of levels, or *grade* of the streets, as we term it, which is sufficient, in all cases, to carry off the surface water freely, in most cases *briskly*.

3. The streets are not generally paved: some of those most exposed to injury, from the rapid motion of surface water, in heavy showers, are paved. Alleys, we have none. Inclination for surface drainage answered in No. 2.

4. The cellars are generally drained beneath the surface by private drains or sewers, which carry off, also, the water from sinks; the private drains communicating with some *main trunk*, which is to be found in almost every street, built at the expense of indi-

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viduals or neighborhoods, and which empties into the dock. This mode is effective so far as adopted.

Query 4th.—1. There is no municipal provision for cleansing the streets; the natural facilities for surface drainage, before referred to, cause them to be washed by every shower.

2. There are but very few courts occupied by the poor, and those are spacious and clean. Alleys, there are none.

3. The refuse from the houses, not carried off by sewers, is taken away by the "city cart," which passes through all the streets, several times a week, for that purpose.

4. The street manure, where retained, is gathered up from time to time by inmates of the almshouse, and deposited upon the grounds of the farm connected with that establishment.

Query 5th.—1. The most densely populated parts of the town have the advantage of free ventilation.

2. The streets are generally wide.

3. Courts and alleys answered in query 4th, No. 2. The houses of the native poor are, for the most part, comfortable, healthfully situated, and not over-crowded; those of the *Irish*, are as well situated, but almost invariably over-crowded, filthy, and very imperfectly ventilated.

4. The houses are warmed by wood or coal close-stoves.

Query 6th.—1. Children of both sexes are taught in our primary schools; they are admitted at four years of age, and remain until they can read and spell fluently, and cypher in *long-division* readily, when they are admitted into the grammar schools. Here the sexes are separated, the girls and boys attending schools held in different buildings. The influence of our system upon the health of the pupils is not prejudicial, so far as I know.

2. The rooms vary in size, according to location, and the probable number of pupils to be accommodated. Those in our principal school-houses are from twelve to sixteen feet high, with corresponding proportions, and carefully ventilated. The number of pupils varies from fifty to one hundred and fifty, in each room; each pupil, however, having sufficient space both for *moving* and BREATHING. Instruction is given six hours a day, except Wednesday and Saturday, to which three hours each are allotted. An intermission of twenty minutes is allowed, forenoon and afternoon, for exercise in the open air. There are two summer vacations, of one week and two weeks.

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Query 7th.—1. There is a marine hospital—no dispensary but the one connected with the almshouse.

2. The public edifices, of *recent construction*, have been built with due regard to ventilation. The high grounds, at the eastern and western extremities of the town, are appropriated for public promenades, and afford a highly invigorating air, and a prospect, both of land and water, unsurpassed in richness, variety, and extent.

Query 8th.—Good water, and an abundant supply, is furnished by wells and springs. Rain water, subjected to the process of filtration, is usual, and preferred in many families.

Query 9th.—The municipal regulations in the above subjects are generally effective.

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H.—4.

COMMITTEE ON PUBLIC HYGIENE.

Hygiene of New York City. Reported by JOHN H. GRISCOM, M.D.

Query 1. The population of the city of New York may now be estimated at 400,000.

Its position in relation to the surrounding country is highly salubrious, being on an island, of triangular shape, all sides of which are washed by broad and deep rivers, with rapid currents of salt water, which run in both directions as the tide rises and falls, and are never at rest. The rise and fall of the water average about six feet.

The base upon which the island rests is supposed to be a basin of rock, pushed up at some points of its edge, and forming a hollow in the centre, which is believed by some to contribute to a certain degree of dampness of subsoil; but in the more thickly settled portions of the city there have not thus far been discovered any serious impediments to sewerage, as far as it has been tried. The basin alluded to, if it does exist, is too far beneath the surface to present any obstruction to drainage by sewers.

2. With reference to health, the character of the city of New York is by no means what it might be, if its natural facilities for maintaining cleanliness, and enforcing other sanitary measures, were properly regarded and diligently embraced.

Its ratio of mortality is believed to be above the average of large cities, and when its great natural advantages are taken into consideration, and a comparison instituted between it and less favoured places, we must necessarily look to its sanitary regulations for the cause of this.

A large deduction is, however, to be made from the bills of mortality on account of the numbers of foreigners who die here, of diseases contracted in other places, and who, on arrival, had health permitted, would not have remained in the city.

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Its most populous parts are exceedingly crowded, and in very many instances, no regard whatever is paid to the numbers inhabiting any particular house or section.

There is no law to regulate the number of inhabitants to any given space; and such a law as is now in force respecting the number of passengers in ships, would confer very great benefits upon the poorer classes of this city. Diseases of asthenic character are very prevalent among them; arising, doubtless, from the impurities of the air they breathe, in their low, rotten, and crowded tenements, and the abundant filth with which they are surrounded and encased.

3. The arrangements for drainage are good and improving. Surveys of levels are made, and new sewers rapidly projected. In most parts there is good inclination for drainage, though in some places the surface is quite level, and stagnant water is by no means uncommon. The streets and alleys are almost universally paved, in the most thickly inhabited parts of the city.

4. The mode of cleansing the streets has varied in past years. Formerly, an ordinance required each house occupant to sweep up the dirt in front of his own residence, two or three times a week, which was then to be removed by public carts. On account of the number of distinct families occupying single houses (all of whom could not be made responsible for the work), and other causes, rendering the enforcement of that law difficult and almost impossible, the mode was changed, and a municipal department created for the purpose, and the streets were swept by labourers employed by the corporation. This continued several years. Subsequently, the sweeping of the streets was let out on contract, first to one contractor, afterwards to several, the city being divided into districts for the purpose.

All plans have failed to insure thorough cleanliness. Street-sweeping machines have not been permitted, it is believed, for the principal reason, that they cannot exercise any political influence—they cannot vote—the street sweepers forming a strong and important corps of voters, who cast their suffrages as they are required by the party in power.

The expense of cleaning streets, including the removal of coal ashes, garbage, &c. &c., amounted, in 1848, to $145,844 95; the receipts for sale of manure, &c., being $18,592 32, leaving a net cost to the city of $127,252 63.

5. In the more densely populated parts, the ventilation is exceedingly imperfect; the internal ventilation is about as bad as it can be.

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Most of the streets cannot be termed narrow, when compared with the old cities of Europe; most of the narrowest are mere alleys, and many of these are closed at the end. There are, however, fewer of these closed alleys or courts than in the city of Philadelphia. The dwellings of the people inhabiting these parts are of the worst possible description; old, dilapidated, and filthy, and crowded with people to an extent scarcely to be believed. As many as twelve to fifteen have been known to occupy one room; sixty may be the entire number in one house. One exception, however, stands out prominently above all others, a curiosity in the way of human habitations, known as the old Brewery, at the Five Points, which has often been known to hold 300 dwellers.

The average number of people in each room, in the poorest parts of the city, is probably six. The ventilation, as before remarked, is as bad as it possibly can be, the atmosphere being rendered worse in winter, by the methods adopted for warming; small stoves for burning anthracite coal being universally used. Other parts of the city, which may be characterized as densely inhabited, are occupied by mechanics and artizans, who, with their families, occupy an entire floor; a suit of two or three rooms taking the place of the single room already referred to; twenty to twenty-five persons thus living in one house.

6. There are, in all, one hundred and seven public schools in New York; eighty-three of them under the care of a charitable society established in 1805; and twenty-four under the control of the public authorities. Children are received at all ages; for the youngest, there are sixty-five of these schools, denominated primary schools.

It is difficult to say, precisely, what effect these schools exercise on the health of the children. Whatever bad effects are produced, must be attributed to the great numbers in them, and to the absence of a scientific method of ventilation. The rooms are usually quite filled, *often over-crowded;* recitation-rooms, of smaller dimensions than the main room, are often found in the buildings, to which classes of the more advanced pupils frequently retire, and thus, perhaps, are in a measure relieved from the evils of constantly breathing the air of a large and crowded room, though this relief cannot amount to much, all the rooms being under one roof, and between the same walls.

The mode of ventilation, *generally*, consists in nothing beyond flues, which open into the rooms, and into which, in winter, stove-pipes are introduced. There are some exceptions to this deficiency,

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however, some of the elegant buildings recently erected being ventilated upon the plan introduced by Joseph Curtis, while the method of warming by hot-air furnaces, causing an influx of warm fresh air, in winter, though imperfectly carried out, is getting more in vogue.

The time allotted to instruction is from nine o'clock till twelve, with a short intermission during that period, in the morning, and from two to five in the afternoon, in summer; in winter, from nine to three, with appropriate short intervals. On Saturday of each week, there is a release from school duty, and a vacation of from three to five weeks in summer.

7. There are three dispensaries affording medical aid and medicine gratuitously to 50,000 patients annually; which, with the City Hospital, which has about 300 beds; the Bellevue Hospital, with 800 beds; a Lying-in-Asylum, capable of accommodating about fifty patients; with an Infirmary for diseases of the eye and ear, constitute the medical charities of the city.

There is no general system adopted for ventilating public buildings. Most of the older churches have no arrangement whatever for this object, and some of the more recently built edifices have nothing more than an opening in the ceiling.

Some of the open squares are remarkable for their beauty, and the taste displayed in their arrangement. Four of them have fountains of very large size, which throw the water to a great height. These squares are by no means so numerous as they should be in so large a city. In the newly built sections, however, ample provision has been made for them.

8. The city is supplied with water from the Croton River, and is brought a distance of forty miles by means of an aqueduct, which empties into a *receiving reservoir*, covering thirty-five acres of ground; it is thence conveyed to a *distributing reservoir*, into which it flows without the aid of any hydraulic machinery. The elevation of the latter reservoir enables the water to be received in any part of the city, eighty feet from the ground. It is abundant, and of very excellent quality.

9. The municipal regulations have hitherto been quite inefficient; they have, however, been improving for the last few years, and the new charter which the city has recently obtained, will, it is generally thought, add much to their efficiency.

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H.—5.

Report on the Sanitary Condition of Philadelphia. By ISAAC PARRISH, M. D.

"WHAT is the population of the town, and its position in relation to the surrounding country; what the geological formation of the country, the nature of its surface and subsoil, and the means of or impediments to drainage, more especially within the town limits?"

Topography, &c.—The city of Philadelphia, in lat. 39° 57′ north, and long. 1° 54′ east of Washington, is situated on the western shore of the river Delaware, on moderately elevated ground, extending westward, about two miles to the river Schuylkill, which unites with the Delaware, three miles to the south. The Delaware is a mile wide opposite the city, and admits ships of heavy burthen to come to its wharves, which are strung along an extent of nearly five miles. The water of the river continues fresh for about thirty miles below the city, or nearly one-third the entire distance to the Atlantic Ocean, by the natural course of the river and bay. In a direct line eastward, across the State of New Jersey, the distance to the sea is about forty-eight miles.

The river Schuylkill, opposite the western side of the city, is about 200 yards wide, where it admits sea vessels of moderate draught.

The portion of the isthmus formed between the Delaware and Schuylkill on which Philadelphia stands, is of the modern tertiary formation, consisting below of sand and gravel, overlaid with a thick bed of clay, the whole resting on a primitive basis, which shows itself on the surface, in some of the north-western districts. Fresh water is easily obtained, by digging, in every part of the city and suburbs, at depths varying from ten to thirty feet. This was formerly soft and excellent, before the contamination incident to the extension of the city, and the usual infiltrations. The water now used is supplied in the greatest abundance from the water-works erected on the Schuylkill, north-westward of the city. The whole

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district over which the population of Philadelphia is spread, as well as the adjacent country, which is generally of the primitive formation, admits of the most perfect drainage.

The plot of the city proper, forms a parallelogram of a mile in width, from north to south, and about two miles from east to west, or from river to river. But the town has so far overrun the original lines surveyed by Wm. Penn, that by far the larger portion of the population reside in the adjacent districts, which constitute, as it were, so many distinct wards.

According to a calculation made by Dr. G. Emerson, for this Report, the population of the city and liberties at the present time may be computed at 320,000, including only those sections of the county making returns of births and deaths to the Health Office, and subject to the regulations of the Board of Health. This estimate is founded upon the supposition, that the ratio of increase continues the same as between the census of 1830 and that of 1840, viz., about three and a-half per cent. per annum. The births and mortality per annum, as well as for the several months, are given in detail, in a highly valuable paper, published in the American Journal of Medical Sciences for July, 1848, by Dr. Emerson, under the head of "Vital Statistics of Philadelphia," together with the proportion of white and coloured inhabitants, &c. This, with other papers in former numbers, by the same author, embracing a period of twenty-four years, will be found exceedingly interesting to those who desire to pursue the subject.

"*Query* 2. What is the character of Philadelphia in reference to health? What is the condition of its most unhealthy and crowded parts, where disease is supposed to be most prevalent, and to what causes are such diseases mainly attributable?"

Ans. The general character of Philadelphia for health, is perhaps equal to that of any large city in the world; and had the designs of the illustrious founder been fully carried out, it is probable, that a still greater immunity from disease than now exists would have been enjoyed. The rectangular arrangement of the streets, extending for the whole breadth of the city North and South, and East and West between the two rivers; their ample width, and convenient level for drainage; the natural advantages of surface and soil; the ample supply of pure water, with wholesome regulations to preserve cleanliness, might well give to Philadelphia a high range of health. But in the rapid progress of population which marks all the cities of the New World, and in which this has largely participated, features

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have been engrafted upon the original plan which have added greatly to the sources of disease, and have marred the beauty of the primitive design. Amongst these, may be mentioned the building up of the river front of the city with massive structures, which cut off the air and the view of the river; and the construction of a narrow street surrounded by high buildings between the river and the natural bank which rose up from its shore. This bank is described, by the early pioneers in the settlement of the city, as a beautiful, elevated hill, which skirted the shore along the front of the city, and upon its top was laid out the broad and spacious street called Front street, now one of its great business thoroughfares. It was the design of Penn, that the space between Front street and the river should be kept open, and that the bank should be laid out as a shaded promenade, along the whole line of the city, to be used as he expresses it, "as a common exchange or walk," with wharves opening on the river below, thus forming a beautiful quay for the securing of vessels, the unlading of merchandize, &c., but that no buildings should be erected on the east side of Front street. It was not long, however, before the holders of lots on Front street, began to urge their claim to build vaults or store-houses in the bank against their respective lots; these applications were at first firmly resisted by Penn, who allowed them the right of building stairs to the top of the bank, but not to encroach in any way upon the public promenade.

As early, however, as 1690, grants to build on the wharves and in the bank were made to some few special friends; and on William Penn's second arrival in the colony, in 1699, after an absence of some years, he found, to his great regret, that serious encroachments upon his plan had been permitted by his agents, and that a permanent deformity had been inflicted on the city. Buildings in the bank, and on the wharves proceeded, and, as early as 1705, they had progressed so far that the owners were called upon to regulate a street between these buildings; and, following out the same selfish policy which had induced the first departure from the proprietor's plan, they laid out the present unsightly thoroughfare, called Water street. The eastern front of Philadelphia was thus intersected by a confined, irregularly built, and narrow avenue, which has since served as a focus for disease and pestilence, instead of presenting a beautiful, open promenade, which would have diffused health and salubrity to the inhabitants.

As an evidence of the fatal error which was thus early committed, it may be mentioned that the several yellow fever epidemics which

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have scourged Philadelphia, have commenced their ravages in this section of the city; and that other infectious disorders are very apt to spread from this point. Houses built upon the side of a natural bank cannot of course have a back outlet, and hence the tenements on the west side of Water street, which are occupied as the residences of the poor, or as taverns for the accommodation of sailors, emigrants, &c., are without yards, privies, or any means of ventilation, while they are generally overcrowded by a population peculiarly liable, from their habits, to disease. Under these circumstances, it is not surprising that, when an alarm of an infectious disorder prevails, the attention of the citizens should be involuntarily turned to the condition of Water street, and of the river front.

So great an evil has this been regarded, that it has more than once been seriously urged by public-spirited citizens, to restore the plan of Penn, so far at least, as to tear down the buildings along the bank side of Water street, opposite the most densely built portions of the city proper, and to open a shaded promenade in their place.

This proposition was urged by a committee of distinguished physicians, who presided over the sanitary condition of the city during the cholera epidemic of 1832; and they presented an able memorial to the city councils, setting forth its advantages to the future health and prosperity of the inhabitants. The immense expense attendant on such a measure, was, however, considered as an insuperable barrier to its accomplishment, and the project was therefore never seriously entertained.

The unhealthy condition of this portion of the city, was also a subject of serious thought to the late Stephen Girard; and he has added greatly to its improvement, by a munificent bequest of half a million of dollars, the interest of which is appropriated under the direction of the city authorities to the widening of Water street, and to the laying out of a spacious street along the river front, now known as Delaware Avenue.

These improvements, together with the substitution of store-houses for human habitations, which is gradually progressing along this line, will remove many of the nuisances, which have long existed in this section of Philadelphia, and render the eastern front more salubrious and inviting; thus diminishing our regrets that the wise counsels of Penn did not prevail.

Another source of insalubrity in the river front, is the mode

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adopted of constructing the wharves with timber instead of stone, which prevails in Philadelphia.

The constant wearing of the water against the wood causes infiltration and decay, and thus cavities are formed which give lodgment to vegetable and animal refuse floating in the river, and keep up a degree of moisture, which, at certain seasons, may generate disease.

Extending our inquiries into the interior of the city, we may trace a large amount of disease, which prevails in certain localities, to a still further departure from the primitive design of the sagacious founder.

In the original city plot, no provision was made for the small streets, alleys, and courts, which are now so numerous. The design of Penn was to divide the city into squares, or blocks, with the houses fronting upon the four sides; the interior of the square being kept open for garden plots, outbuildings, &c., with perhaps an occasional narrow avenue or private alley, for the accommodation of the property owners in the neighbourhood.

But, with the increase of population and trade, and the enhanced value of ground, these spaces were soon encroached upon by buildings, the private alleys began to be built upon, and were, in process of time, dedicated to public use, while new ones were projected, and lined with small buildings for the accommodation of an humbler class of citizens, whose means would not enable them to live upon the principal streets.

Thus commenced the system of building up courts, alleys, and lanes, which has since proceeded unchecked, and has multiplied the causes of disease to an extent which calls loudly for reform.

It was scarcely to be anticipated that no innovations upon the original plan would occur, especially as the size of the squares was more ample than the necessities, or even the comfort of the inhabitants required; but it is unfortunate for the health and beauty of the city, that no effort was made at an early period to regulate, by law, the mode of building, and to adapt it, as far as possible, to the admirable intentions of the founder.

Had the squares, for instance, been intersected by wide open streets running at right angles, upon which small and neat buildings, with moderate sized garden plots could have been erected, thus securing to each house a free ventilation, no serious evil would have accrued; while a large number of inhabitants, of moderate means, would have been accommodated.

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Unhappily, however, private cupidity was allowed to operate unchecked, and owners of property, eager to realize the largest income from their estates, were permitted to build upon these open spaces in a mode detrimental to the public health. Narrow alleys, and closed courts were projected and compactly built up with small houses, oftentimes without yard room, or back outlet of any kind, and under the private control of the owner.

Alleys of twenty feet wide and upwards, running through the square, and open at both ends, are, of course, less objectionable than closed courts.

These alleys, or small streets, are paved, curbed, and lighted by authority of the city, and are under its control. The houses upon them are furnished with yards, which, though often confined and filthy, still furnish sufficient space for privies, hydrants, &c.; and allow of a circulation of air through the house, and of the access of sun light by back windows opening upon them. In the closed courts, and in some of the smaller alleys, on the other hand, these arrangements do not exist. These courts are usually laid out upon deep lots, fronting upon a small street or alley, and well adapted to several buildings, with ample yard room back; but such buildings would yield a much smaller income, than that derived from a row upon each side of the lot, extending backward through its whole depth. A lot, for instance, of forty feet front, by one hundred feet deep, encompassed by a high wall upon each side, and fronting upon a narrow street, would accommodate three small houses with large back yards; but the same premises, laid out as a court, would give place to seven or eight houses upon each side, with a common outlet of eight or ten feet wide, upon the alley. In such a court, the houses are, of course, built against a dead wall, and unprovided with any means for the access of air or light in the rear; they are without privies, or hydrants, and from the height of the surrounding walls, and the confined situation of the street on which the court has an outlet, it is often deprived of currents of air through it, and from the access of sun light, except during a small portion of the day.

At the upper end of such courts, a hydrant, to be used in common by the occupants, is placed, and near by a range of privies; which, in warm weather, infect the atmosphere with a sickening effluvium; while, in some instances, the privy is even placed in the cellar of each house, which is still worse.

There is another description of court quite common in Philadel-

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phia, even more confined than this. A row of small tenements is built upon the rear of a lot of ordinary dimensions, upon which is erected a substantial wide building, fronting on the street.

The space which is ordinarily appropriated to back buildings, and to a garden plot, is filled up by a compactly built row of houses, the only entrance to which is through a four feet wide alley, opening out upon the street along side of the front building. In this confined space, a number of families are housed with a dead wall in front of them, and no outlet back; without the luxury of sun light, and a very deficient supply of fresh air. Many such pent up courts are to be found in the thickly settled portions of Philadelphia, the existence of which is, perhaps, unknown to the great mass of the citizens. While they fill the coffers of the greedy proprietor, they inflict disease and discomfort upon their needy occupants.

That confined courts and alleys should be numerous in the thickly settled parts of the city, where the high value of ground holds out a strong inducement to appropriate it in this way is, perhaps, not surprising; but the evil also prevails, and is increasing in the recently built portions of the city and districts, where property is comparatively cheap. The beautiful section of the liberties called Spring Garden, in which are some of the most tasteful private residences and public buildings to be found in Philadelphia, most of which are of modern construction, is already defaced by this system of building courts and alleys, and will probably be still further spoiled, if some legal check is not placed upon it.

The same irrational system of building houses against dead walls, without back windows, yard room, hydrants, or privies, prevails here, and for the same reason, viz.: because, in certain localities, such a plan will yield to the property owner a larger income than by pursuing the ordinary method.

To illustrate the extent to which this system prevails in the city proper, we may mention a fact, elicited by a slight survey of a chart of the city, in the office of the city surveyor.

In two blocks, not far distant from the centre of business, and selected without reference to any pre-eminence in this respect, it was found that, in one, *six compactly built alleys*, and *five closed courts* existed, and in the other, *four alleys* and *seven courts*.

The front buildings on the four sides of these squares, were for the most part neat and substantial private residences, and some of them conspicuous for these qualities, while the interior of the squares

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were thus compactly built up, and densely crowded with population.

Your reporter made some effort to ascertain the number, dimensions, population, &c., of these confined courts and alleys, within the city limits, but found the inquiry too extensive to be prosecuted at present.

The attention of the Sanitary Committee of the Select and Common Councils, and of the Board of Health was, however, solicited to it; and partial returns from several districts were presented through the collectors of vaccine cases, as will be found, in the interesting report herewith presented, of the Joint Special Committee of the Councils, to whom was referred the circular letter of our committee.*

The subject of the construction of houses for the poor in large cities, is one of great importance in its relations to the public health.

In these habitations children are reared, and during their infantile years, they are confined very much to them. The crowding together of a large number of families in confined courts, such as we have described; the accumulation of filth and offal, which must inevitably take place in those localities; the excessive heat and closeness of the atmosphere in summer, and the over-heating of the houses by coal stoves in the winter; the foul smell from privies, and the absence of hydrants to each house for the promotion of cleanliness, are so many causes of disease.

We hazard nothing in saying that the seeds of scrofula and consumption are sown here; and that the more acute diseases, which are distinctly traceable to a deficiency in the supply of the natural elements for sustaining and developing the frame, must prevail in these confined situations. Happily, the instincts of childhood lead the young being beyond the narrow confines of his cheerless home, and, when his strength will permit, he is prompted to active sports in the open air, which counteract, in part, the deleterious influences by which he is surrounded in doors; so that, in spite of these, his constitution, if naturally good, may become established on a firm basis; but still, many perish before they are capable of seeking for

* By this report, we observe that in the north-east district of the city, embracing the squares from the south side of Vine street to north side of Chestnut, and from east side of Ninth street to Delaware avenue, upwards of fifty courts and alleys are reported; in most of which there is no ventilation, and in the rest, it is stated to be very defective. In many instances, two or three families live in one house, and the premises are reported as filthy. In the south-east district, embracing the same extent of surface, forty courts and alleys are noted; and these numbers are believed to be below the truth.

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themselves the air and light of heaven, and of establishing their claim to these natural gifts.

The amount of infant mortality, in Philadelphia, believed to be traceable to a combination of heat, moisture, and impure air, in confined situations, is sufficient to excite anxious inquiry. Cholera infantum, and other chronic bowel diseases, which annually carry off such a large number of children during the heat of summer, are known to be greatly influenced in their origin and progress by these causes. The cause of a large portion of these cases is as obvious as though it were tangible, and the cure often depends simply upon the removal of the patient from the crowded court or alley, to the pure air of the country. During a period of ten years, from 1838 to 1847 inclusive, 2,936 deaths are reported as having occurred from cholera infantum, and 119 deaths from teething, in the districts reporting to the Board of Health. How many of these deaths came from the closed courts, crowded alleys, and illy ventilated abodes of the poor? We imagine, without any means of accurate information, except a somewhat extended personal observation, that a large proportion could be traced to these situations; and, hence, that they were, in a great measure, dependent upon removable causes.

During the same period, there were reported 2,450 deaths from convulsions, in children under two years of age. May not many of these be fairly attributable to the same influences?

In addition to the infantile diseases, these localities form foci for infectious disorders, during those epidemic visitations, which occasionally afflict large cities, or which are transported from other places; small-pox, ship or typhus fever, and other like disorders, originate and spread here, with a rapidity and a fatality not observed in more open situations. Several typhus fever epidemics which have visited Philadelphia within the past few years, have originated and been almost entirely limited to a crowded and filthy section of the district of Moyamensing, amongst a class of depraved inhabitants, who live in confined courts and cellars, exposed to the inclemencies of the weather. Small-pox may also be traced to the same districts; and were it not for the rigid municipal regulations, which require the immediate removal of patients affected with these diseases to hospitals, and the evacuation and cleansing of the infected district, there would, no doubt, be a frequent extension of these disorders to other sections of the city.* The sanitary condition of some of the

* The influence of these confined habitations upon the health of the neighbouring city of New York, has been ably investigated by Dr. John H. Griscom, of that city. He

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large cities of Great Britain, is known to be greatly influenced by the evil of which we complain, with the additional cause now operating of a deficient supply of food, which is, unhappily, experienced by many of the poor who live in these wretched habitations. In some of the cities and large towns of that country, the mortality from diseases induced by causes, which, in a more favoured state of society, do not exist, is frightful, and furnishes a sad commentary upon the civilization and philanthropy of the age.

It is, however, gratifying to perceive that the condition of these unhappy sufferers is attracting the attention, and arousing the efforts of some of the first statesmen and philanthropists of that nation, and that a thorough investigation into the sanitary condition of towns, and into the removable causes of disease, is now in progress. Health of towns' associations are formed, parliamentary committees are appointed, and the sanitary question has taken its rank amongst the leading topics of public concern.

In the United States, we are more favourably situated, in these respects, than in the older cities of Great Britain and the continent. Our cities are comparatively new, and most of them are in the progress of rapid growth; so that now is the time to guard against errors of construction, and a system of over-crowding, which have inflicted such heavy, and, it is to be feared, irremediable calamities upon the towns of the old world. It is the opinion of the writer, as well as that of the committee with which he is associated, that the construction of dwellings should be, to some extent, under legal control; so far, at least, as to prevent the building up of confined courts and alleys, or of houses without provision for privies, hydrants, and a certain amount of open space in their rear. Surely, the protection of human life is one of the highest and noblest ends of government; and if a sordid self-interest interferes with the public good, by depriving any portion of the honest and industrious poor, of those natural elements, essential to the preservation of

has ascertained, that the females living in these situations, suffer much more from disease than the males, whose occupations lead them more into the open air, while the women are confined to this polluted atmosphere during the greater portion of the time.

"It will be seen," says Dr. G., "upon examining the dispensary returns, that in some years the proportion of females to males prescribed for at the dispensary, has been as 12 to 10½; in others, 12 to 8½, and, in one instance, as 19 to 11. This comparison is rendered more striking, when we take into account the greater amount of intemperance among the males." "See Sanitary Condition of the Labouring Population of New York, with Suggestions for its Improvement," &c. By John H. Griscom, M.D. New York, Harper & Brothers, 1845.

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health, it should be within the province of the State to interpose its authority to prevent it. This principle is recognized in the powers given to Boards of Health, and other municipal bodies, to remove nuisances, &c., and should, we think, be extended much farther than is now generally regarded as essential. If, for instance, it can be shown that the method of building to which we have referred gives origin to a multitude of diseases which might be avoided under a more rational system, and that a large amount of mortality is distinctly traceable to it as a cause, it is certainly the duty of the legislature to pass laws which shall effectually prevent this unnecessary exposure of human life. The law regulates the laying out and grading of streets; it fixes lines and defines the limits of estates; it declares even that no *frame* buildings shall be erected, within the city limits, for fear of fire, which may endanger the surrounding property; why may it not, with still greater propriety, control the construction of houses, so far as to secure to their inhabitants a due supply of the elements so bountifully furnished by nature for the sustenance and strength of man? Nowhere is such legislation more imperatively demanded than in the cities of the New World. The climate of our temperate regions is subject to greater extremes than are experienced in the central portions of Europe, while the hot weather of our summers superinduces many diseases almost unknown in those countries, thus tending to aggravate the miseries of confined and over-crowded localities. If, therefore, the municipal authorities do not move in this matter, it is greatly to be feared that the large and flourishing cities, which are now rapidly rising up in different sections of the Union, some of which will, ere long, vie with the largest towns of the Old World, in wealth and population, will be permanently defaced, and their facilities for diffusing health and comfort for ever impaired, for want of such timely interference. For while taste and elegance may adorn the mansions of the rich, and increasing splendour may mark the structures which public munificence or private enterprise rears to charity and science; yet, if the dwellings of the poor are neglected, if the light and air of heaven are shut out from their abodes, and avarice is allowed to feed and fatten upon their helplessness, we shall fail in establishing cities worthy of that high destiny to which our country aspires. It is the boast of the Republic to regard with an equal eye the happiness and interests of all classes, and especially to throw the ægis of its protection around those who, from adverse circumstances, may be exposed to privation and suffering, at the hands of their more

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favoured fellow-citizens; let our legislators, then, be inspired with the genius of our institutions, and act upon this principle, and the work which we advocate would be speedily accomplished.

Your committee would therefore respectfully urge upon the attention of the authorities of the large towns and cities of the United States, the subject of the construction of houses, and of the proper arrangement of streets, avenues, &c., within the town limits, as one intimately connected with the health and civilization of their respective communities, and eminently worthy of their regard.*

There are other causes of disease existing in Philadelphia, which will be more appropriately noticed under other heads of this report. We would briefly refer here to the prevalence of malarial fevers in the thinly settled districts lying between Broad street and the river Schuylkill, and in the low, flat lands to the south of the city, situated between the Delaware and Schuylkill, familiarly called the "Neck." There were formerly many brick ponds, or other smaller collections of stagnant water scattered over this portion of the commons of the city, which were the fruitful source of autumnal fevers, generally of the intermittent type; these, however, are gradually disappearing, as pavements and buildings are extended in this direction—so that many localities which, a few years ago, were subject to these fevers, are now entirely clear. There has been, however, during late seasons, a prevalence of this class of disorders in the southwestern and northwestern suburbs, bordering on the Schuylkill, as well as some cases of dysentery which appeared to be dependent on the same causes. It is confidently believed, however, that, in the progress of building, these diseases will entirely disappear, as no case of intermittent or remittent fever is known to have primarily originated within the compactly built portions of the city.

In the "Neck," and along the banks of the Schuylkill in the vicinity of Philadelphia, it is probable that malarial fevers will continue to prevail at certain seasons, although there is an unaccountable irregularity in their visitations. For a series of years, fevers were so prevalent that many beautiful country seats were abandoned by their proprietors, and sold out at very low prices, while an ex-

* As a preparatory measure to proper legal enactments on this subject, the institution of sanitary surveys, under the direction of the municipal authorities, would become necessary. These surveys would include an accurate investigation into the condition of confined and crowded localities, with a chart of the town or city, which should reveal at a glance its interior arrangement, and thus enable the proper officers to act understandingly.

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emption for a few succeeding years partially restored confidence, and caused them to be re-occupied, to be again deserted by their new owners, at the occurrence of another epidemic.

It is believed by many that the construction of the dam on the Schuylkill, at Fairmount, has contributed largely to render these suburbs unhealthy; and there is, perhaps, no doubt of the fact; though during some seasons, as, for instance, in the autumn of 1847, there were many cases of fever along the banks of the river below the dam, and in the sections of the city before alluded to.

Drainage, &c.—Philadelphia enjoys great advantages in the facility with which a system of drainage may be carried out. It has the natural advantages of surface and soil, together with a careful regulation of lines and heights in all the streets, lanes, and courts, embraced in the limits of the city and districts, which proves amply sufficient for this purpose. The water is carried off by means of common sewers, at the corners of the principal streets, which are generally sufficient, though the opinion is expressed by Marine T. Chandler, assistant city surveyor, that an increase in the amount of sub-drainage would be advantageous. (See letter of M. T. Chandler. *Report of Joint Committee of Select and Common Councils, on Public Hygiene, &c.*, p. 12.) The public sewers vary in size from three to ten feet in diameter in the clear, and with their branches, amount in the aggregate, at the present time, to eleven and three-quarter miles, more than four and a half miles of which are discharged through the Dock street sewer into the river Delaware; it is in contemplation to construct another sewer at Walnut street, to take off a portion of this drainage, and to accommodate additional branches which the increasing accumulation of water may require. In the surrounding districts, the sewerage amounts to fifteen and three-quarter miles. The cesspools at the inlet of the sewers are apt to become filled up with putrid filth, thus impeding the course of the water, and sometimes during heavy rains causing a temporary overflow of the gutters; to prevent this, these inlets are frequently cleaned out, by raising up the mud which collects in them and depositing it on the pavement; a practice which, in hot weather, causes the surrounding atmosphere to be charged with a sickening effluvium. If some other plan of cleansing these inlets could be devised, it would no doubt add to the health and cleanliness of the city. (See letter of Samuel Haines, City Surveyor, pp. 17 and 18. *Report on Public Hygiene.*)

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The plan of flushing, by copious effusions of water into the sewer, so advantageously adopted in Great Britain, might be introduced into our cities with great benefit. The trapping of the sewers, for the purpose of preventing the emission of noxious gases from the inlets, has been partially attempted in Philadelphia, but with results altogether inadequate for the purpose. As this has, however, been well accomplished elsewhere, it is presumed that further experience will perfect it here. The great mass of the drainage of the city and districts is necessarily surface drainage, inasmuch as the densely *built* area of the town occupies but five *square* miles, while the total amount of sewers is but twenty-seven miles in extent.

The drainage by these arrangements would be amply sufficient, were the municipal regulations to enforce cleanliness strictly adhered to. It often happens, however, that obstructions occur from the collection of offal in the gutters deposited in violation of the law, thereby adding to the causes of ill health. Another impediment to a perfect system of drainage, consists in the mode of paving the streets and carriage ways of the city with rounded pebble stones, the interstices between which furnish a lodgment for dirt and water, much of which percolates into the stratum below. The substitution of cubical blocks for the present method of paving would in a great measure remedy this difficulty. If sub-soil drainage of the pavements, where practicable, were resorted to, the effluvium and moisture arising from them would be further diminished, and their durability and level more perfectly maintained.

There is, also, in certain *portions* of the districts recently settled, and in some of the courts and alleys in these localities, an entire deficiency of pavement, and consequently of adequate drainage; and even in some of the old portions of the town, especially in Moyamensing, a few alleys are still unpaved. As the spirit of improvement progresses, and new buildings are erected, this difficulty is rapidly disappearing.

Cleansing, &c.—The streets are cleansed by contract, with some exceptions, once a week; the contract in some instances being given to the highest bidder, the value of the street dirt being held, not only as an equivalent, but as a source of revenue to the contractors. The mode adopted is as follows.

The streets are first watered in dry seasons, and then by the application of large birch brooms, aided by iron scrapers for the gutters, the dirt is gathered into heaps, on either side of the street,

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taken up by carts, and deposited on vacant lots, subjacent to the outskirts of every district appropriated for the same by the several municipal authorities. From thence it is sold to the neighbouring farmers as manure. The kitchen offal and slops from houses, are generally collected by covered water-tight carts, sent round on particular days through the week, taken out of the city, and the most of it converted into swill for hogs, while the dry refuse, from houses, is collected in the same manner and sold for filling in lots and streets in the new and outer precincts of the city and liberties. (*See* Communication of Board of Health to Committee on Public Hygiene,—herewith presented.)

Some streets are cleansed by the above method twice in each week, and others once a week; and all the paved courts, lanes, and alleys within the city limits are included in the contracts. *Unpaved* avenues are not so cleansed, and complaints are often made that the confined courts and alleys receive less attention than the larger and better ventilated streets. (*See* Communication of Board of Health.)

The contractors further engage to remove the kitchen offal which may be placed by housekeepers in some convenient place, *daily*, from the first day of June to the first day of October, three times a week during the months of May and October, and twice a week during the other months of the year; and also completely to cleanse and wash the market-houses, twice in each week, from the first of May to the first of October.

The efficacy of the above regulations depends both upon the fidelity of the contractors, and upon the carefulness of housekeepers. Lapses of duty in the former can generally be detected, and remedied by the proper authorities; while carelessness in the latter is not so easily reached. Upon this latter point, we are impelled to quote the following remarks of Charles A. Poulson, Esq., the Chairman of the Committee of Councils, to whose report we have so frequently had reference. "But the deficiency in cleanliness most to be dreaded," say the committee, "exists even in our midst, from a careless or culpable want of this virtue in private residences. It must not be concealed, that this grievous evil does not obtain *solely* in the habitations of the poor and destitute, in lanes, in courts, and in alleys; but actually exists also on the premises of persons whose means are adequate to procure a better state of things; where there are cellars, vaults, sinks, privies, and other secret and hidden depositories of filth to be found, in some cases we may, perhaps, charitably hope unknown to those most immediately interested—

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heads of families." Another source of insalubrity arises from several open drains, or natural water-courses in the districts (but not in the city proper, where they also existed in former times, but have been converted into sewers). These are gradually undergoing the same process, and in the progress of improvements will, no doubt, be soon obliterated. The numerous piggeries within the limits of the city and districts, furnish a source of insalubrity, which is much complained of. In some of the narrow alleys and courts, inhabited by the poor, large numbers of pig-sties are to be found, sending forth their noxious gases, and thereby adding another to the already accumulated causes of disease in those confined situations; while the existence of large piggeries, in the open lots around the city, sometimes infects the atmosphere of the whole neighbourhood.

Ventilation of Public Buildings.—Most of the public buildings of Philadelphia, including court-houses, school-rooms, places of public worship, lecture-rooms, halls devoted to scientific purposes, hospitals, prisons, &c., are provided with no means of ventilation, except by casual opening of the windows and doors. A few are provided with the additional contrivance of one or more openings in the ceiling, sometimes connected with louvers in the roof, which afford partial, though by no means free ventilation. A small number of houses of worship and school-houses, have recently resorted to forced ventilation, by means of fires in lofty flues or chimneys, but in no instance, that we know of, has this plan been perfected so as to secure a pure atmosphere at all times and seasons.

The west wing of the Pennsylvania Hospital, devoted to the female patients, is believed to be the best ventilated building in Philadelphia, and is scarcely equalled by any similar institution in the Union; the apparatus for warming and ventilating are combined, so as to render the atmosphere comparatively pure, and well-tempered during the cool seasons.

Ventilation in the prisons of Philadelphia, is especially faulty; and the want of it is believed to be a fruitful source of disease in these establishments. The absence of a sufficient supply of pure air, is particularly felt in prisons conducted on the plan of separate confinement, as in Pennsylvania; inasmuch as the convicts are confined to their cells both day and night, and have no opportunity for exercise in the open air; except during an hour each day, in a small yard attached to the cell. In the congregate prisons, on the other hand, where the ventilation of the cells is equally bad, the prisoners

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spend the day either in working in the open air, or in spacious workshops, and are exposed to the confined air of the cell only during the night.

The school-houses are also generally badly ventilated, though in some, recently built, greater attention has been bestowed upon this subject. The evils of defective ventilation in these institutions are especially worthy of regard. In them, children, whose constitutions are in the process of formation, spend some five or six hours during the day, engaged in mental labour, and subjected to the necessary discipline of a school. It often happens too, that the school-rooms are over-crowded, and during cold weather the windows are kept tight, and they are heated by red-hot coal stoves, or by furnaces in the cellar, a combination of circumstances eminently injurious to health, at an age when the constitution has need of a full supply of the agents which nature has furnished for its development and support.

Since the introduction of anthracite coal, the ventilation, both of public and private buildings, is more defective than formerly, when houses were chiefly heated by wood in open fire places, although the degree of warmth and comfort is greater than by the old method.

The introduction of furnaces in lieu of the open grates, is also believed to have diminished the purity of the atmosphere, by introducing air into the room at too low a dew point, and charged with dust.

The heated air is also apt to be impure by containing a portion of the gases resulting from the combustion of the coal, and from the decomposition of the dust, which is always floating in the atmosphere; where open fires are employed as auxiliary to the furnace, as is now done in many private dwellings, the ventilation is improved so far as the quantity of air is concerned, though the quality remains the same. As furnaces are now generally constructed, their influence upon life and health must be more or less prejudicial; and it is greatly to be desired, that a reformation in this mode of heating should be speedily effected.

The ventilation and heating of the houses of the poorer classes, is also intimately connected with the public health. In many of the sleeping apartments of these houses, especially those built in confined situations, there are no flues, chimneys, or other apertures for the passage of air, and in these rooms four or five persons often sleep. Other small houses are supplied with flues or small chimneys, which are closed up in winter, and the rooms heated by close

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coal-stoves. In either case, the deprivation of air must be exceedingly injurious, especially to young children.

Public Squares.—Philadelphia is justly celebrated for her beautiful public squares. Four of these, occupying positions intermediate between the river Delaware and Broad street, and between this street and the Schuylkill, and originally known as the north-east and south-east, and north-west and south-west squares, were laid out in the first settlement of the city, by Penn himself, and devised to the city, to be for ever kept open as public grounds, and used as Moorefields, in London, for a free circulation of air and recreation.

Each of these squares contains eight acres of ground; they are beautified by handsome shade trees, and are kept in order by the city.

Besides these, Wm. Penn laid out a plot of ten acres, near the centre of the city, and on the main thoroughfare between the two rivers, which he intended as a site for the public buildings, when the city should become large and populous.

This was called the Centre Square, and, like the others, was devised to the city, to be kept open as a public ground. In the early settlement of Philadelphia, this spot was a beautiful piece of woods, in the midst of which stood a Friends' meeting-house, and subsequently it became the site of a handsome edifice, which was a receiving fountain for the first water-works on the Schuylkill, erected in 1799. After the erection of the Fairmount works, this structure was demolished, and the square became again a public common.

Unfortunately, however, it was not allowed to remain open, as originally intended, but was intersected by two wide streets, and surrounded by another, thus seriously curtailing its original dimensions, and dividing the remainder into four small open spaces, which have recently been dedicated to public use, and are but partially improved.

A project is now on foot, to cover these desirable open grounds with four huge buildings, to be used as depots for the railroads which meet at this point, and the mercantile interest is clamorous for this further encroachment on the original design of the founder. If public health and salubrity are to be considered paramount to moneyed interest, some other spot will be selected for this purpose, and Philadelphia will be spared this additional infliction upon her fair proportions.

Another beautiful square, not included in the original plot of the

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city, has since been added, namely, Independence Square, upon which are located the public buildings, so celebrated in the history of our country. This ground originally belonged to the State, of whom it was purchased by the city corporation, to be appropriated as a public square. It is planted with magnificent shade trees, and is, in common with the other squares enumerated, greatly admired for the neatness and taste with which it is kept.

In addition to these open grounds within the city limits, the corporation has wisely appropriated the grounds at Fairmount to public use, and has ornamented them with a degree of taste and elegance highly creditable to the city. This beautiful spot, easily accessible by omnibuses from all parts of the city, is the resort of thousands of the inhabitants, and is admirably adapted for healthful recreation.

In the districts of Philadelphia, including a much larger space than the city proper, and crowded in many parts with population, no provision has yet been made for public squares.

This is the more to be regretted, from the fact, that ground is now comparatively cheap in many portions of these districts, and that many spaces, now open, would furnish admirable situations for public squares. In the districts of Spring Garden, and of Penn, situated to the north-west of the city proper, there are many beautiful hills overlooking the city, now open commons, which, at a moderate cost, might be secured to these corporations, and appropriated to public use; whereas, if the matter is allowed to rest for a few years longer, the march of improvement, which is rapidly extending in this direction, will level down these commanding eminences, and busy thoroughfares will take their place.

The importance of public open grounds, in the midst of a crowded city, to the health of the inhabitants, was fully appreciated by the founder of Philadelphia, in his first plan, and his foresight has secured to the inhabitants those which they now possess. He looked, not only to the immediate necessities of his own times, but to the welfare of future generations. A more contracted policy seems now to prevail; and the future healthfulness and beauty of the extensive districts which have grown up around the city, and which vie with it in wealth and population, is now in danger for want of a spirit of liberality, which would disregard an immediate outlay, where a great future benefit was to be attained.

Supply of Water.—Amongst the sources of health and salubrity

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with which Philadelphia is favoured, is an abundant supply of excellent water. This is derived from the river Schuylkill, through the admirable works located at Fairmount. The water is pumped by machinery into reservoirs built at the top of the mount, and from thence is distributed through the city.

The main trunks, proceeding from these reservoirs, are so arranged as to admit of the subsidence of any sediment, which may exist in the water, previous to its passage into the smaller pipes which carry it onward; and, except after great freshets in the river, when the water is apt to be turbid for several days, it is drawn from the hydrants in a very pure state. It is estimated, by the Superintendent of the Water Works, that the average number of days in the year, in which this impurity exists, is about twenty. "The water is conducted into the city by two principal iron mains of twenty inches diameter; from these are carried lateral mains, varying in size from three to sixteen inches diameter, and extending, in the city proper alone, nearly seventy-five miles."*

The water is carried into all the main streets of the city, and into almost all the public lanes and alleys east of Broad street, but between that street and the Schuylkill, the distribution is not so complete; this being regulated chiefly by the number of houses in the street. It is not known what proportion of houses in the city are furnished with hydrants; but it is supposed that at least 3,500 families obtain their supply of water from the public hydrant pumps, which are placed along the principal streets.

The districts of the Northern Liberties, Spring Garden, and Kensington, lying north of the city proper, are supplied with water by a distinct set of works, under the control of these corporations; and since their opening, the distribution in this direction has been greatly increased.

The number of baths in private houses, receiving their supply from Fairmount, was estimated in 1847 at 3,521; while the number of tenants who paid for a supply of water during the same year was 15,205 in the city proper. From this, it appears that the number of baths bears a small proportion to the private hydrants existing on the premises of the inhabitants; a fact which would seem to indicate that the practice of bathing was confined to a comparatively small number.

* Letter of Frederick Graff, Superintendent of Fairmount Water Works. Report of Joint Special Committee of Select and Common Councils of Philadelphia, on Public Hygiene.

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A rapid improvement is, however, manifest in this respect; and in most of the houses recently erected on the main streets, or now in progress, conveniences for bathing are furnished—and a bath-house is considered indispensable to domestic comfort. There is, however, a general absence of bathing apparatus, and even of hydrants, in the houses of the poorer classes, and especially in the confined courts and alleys in the populous districts of the city. This is a great evil, and calls loudly for public interference. A regulation, enforcing the introduction of water into every house, would, it seems to us, fall within the powers of municipal bodies. Upon this point, in reply to ninth query of the committee, touching the effective administration of existing ordinances, in regard to health, the Sanitary Committee of the Board of Health remark: "The agents of municipal bodies execute the orders of the body they represent; but it is believed that a very short-sighted, circumscribed policy obtains too generally in the administration of local ordinances, with reference to public health in the *free use of water*, which it should be made obligatory to have introduced into every house erected, however small. By facilitating the means of frequent bathing in families—particularly the poor and labouring classes—the effect would soon be apparent, by removing a prominent cause of disease, and contribute to the moral, as well as physical improvement of the lower classes of society."

But five public baths exist within the city limits, and one in the district of Spring Garden; and the entrance to these is at a cost which excludes a large proportion of the inhabitants who are without the facilities of bathing at their own houses. Could the system of model bathing-houses and cheap baths, be introduced here as in some of the cities of Europe, it would add greatly to the public convenience, and be promotive of health. By this plan, the means of bathing, at least once a week, would be furnished to the labouring population, while the private interest of no one would suffer.

A benevolent institution, recently established in the district of Moyamensing, for the purpose of furnishing employment to the poor, have connected within their building a range of baths, supplied with hot and cold water, to which access is had by tickets, furnished at the rate of three cents each, or by its equivalent in labour. Such an arrangement is highly commendable, and has, probably, been the means, in this instance, of furnishing baths to many poor creatures in this section of Philadelphia, who have never before enjoyed that luxury; and who, from their filthy condition, are peculiarly in want

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of it. The multiplication of such establishments, especially in parts of the city inhabited chiefly by the poorer classes, and open at a mere nominal cost, would be an excellent practical measure of benevolence; and would, we believe, diminish the liabilities to disease amongst a large class, who are now much exposed.

The quality of Schuylkill water is excellent, both for drinking and for domestic purposes; but four or five grains of foreign matter are contained in a gallon; and of this, one-half is carbonate of lime, obtained in its passage through the limestone region in the vicinity of the city.

The supply furnished to the city is ample, and the means of increasing it, when necessary, easy.

At present, it is estimated that each tenant receives, on an average, 179 gallons per day; and, allowing six persons to a family, 30 gallons daily to each individual.*

In order to secure the water from contamination by manufactories, sewers, &c., located above the dam, the city corporation have recently purchased the ground, skirting the river for some distance above the water works, which it now holds as public property.

The conversion of this attractive spot, once occupied as a country seat by the late Henry Pratt, and celebrated for its beautiful gardens, into a public square or park, which should be thrown open to the citizens, and be connected with the grounds at Fairmount, would add additional attraction to this favorite place of resort, and constitute an important link in that chain of influences which counteract the deleterious effects upon health induced by the evils of a crowded population to which we have referred.

Prison Discipline in Philadelphia.—A resolution passed by the Association, at its last meeting, directs the attention of the Committee on Public Hygiene to "the effects of confinement in prisons and penitentiaries; and of the discipline in general, in those institutions, on the health of their inmates." Without entering into an extended inquiry upon this important subject, the undersigned would simply present a few facts and conclusions, derived from the official records of the Eastern State Penitentiary and of the Moyamensing or County Prison, both located in the vicinity of Philadelphia.

These prisons, as is generally known, are conducted upon the plan of separate confinement, which originated in Pennsylvania, and

* See Letter of F.Graff, Esq., in Report of Committee on Public Hygiene, to Councils.

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have been in operation for a sufficient length of time to enable us to arrive at important results as to the influence of this system upon health.

From the last Annual Report of the Eastern Penitentiary, we learn that since its opening in 1829, to the close of the year 1848, 2421 prisoners have been confined there, of whom 214 have died, being a mortality of nearly ten per cent.

In the County Prison, from its opening in Tenth mo. (October), 1835, to the close of the year 1848, 2818 prisoners were admitted to hard labour, of whom 155 have died, being an average mortality of 5.50. (*See* Second Annual Report of Inspectors of Philadelphia County Prison, p. 21.)

This disproportion between the two institutions is believed to be, in a great measure, attributable to the difference in the length of sentences of their inmates.

In the State Prison, persons convicted of the higher crimes are confined, their sentences varying from one to twenty-one years, and averaging at least three years; while in the County Prison, the period of confinement for less grave offences is much shorter, many being confined under six months, and a large majority not over a year. Thus, in the year 1848, of 160 prisoners sentenced to hard labour, 67 were sentenced for under six months, 40 over six months, 39 for one year and over, 11 for two years and over, and 3 for three years and over.

The mortality in both institutions is sufficiently high to excite anxious inquiry, and to create doubts as to the favourable influence of their discipline upon health. When it is remembered that the inmates of prisons are composed chiefly of young and middle-aged men, about three-fourths of the whole number being between twenty and forty years of age, and that prisons upon the separate plan are usually exempt from the epidemic and infectious disorders which prevail in crowded communities, this amount of mortality is the more striking.

It is estimated that in 1840, when the last census was taken, the deaths occurring in Philadelphia between the tenth and twentieth year, were only one in about 260 of the inhabitants at that period of life. Those between the twentieth and thirtieth years of age, were 1 in about 102; between the thirtieth and fiftieth years, 1 in about 57. This estimate includes the coloured population, whose general average of mortality, when taken separately, is

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higher than the whites.* It would appear, therefore, that there is a wide difference between the deaths of the inmates of prisons and of persons of the same age out of prison. Allowance must be made, of course, for the vicious and irregular habits of convicts, and for their defective health on admission, but, even with this abatement, there is still a large mortality to be attributed to other causes.†

In examining into the circumstances which may be supposed to influence these results, several points present themselves as deserving of especial attention.

First. Prisoners in separate prisons, are confined both by day and night to small, illy-ventilated cells, which are shut out from the direct rays of the sun, and are consequently damp and gloomy. To these cells, yards are attached, in which the convicts are allowed to exercise an hour each day; but the walls enclosing these spaces are so high as to cut off a free circulation of air, and to prevent the access of the sunlight, except for a short time each day. To this cell and yard the prisoner is constantly restricted, and his trade or occupation is carried on in the same narrow apartment in which he eats and sleeps. He has, by this arrangement, no opportunity for exercise or employment in the open air, and is breathing, for the most part, a vitiated atmosphere, without the relief of a change of position and scene to a workshop, or of a walk to and from his daily labour.

Second. The occupations supposed to be best adapted to separate prisons are sedentary and unhealthy; weaving and shoemaking being the principal trades in these institutions.

Third. The length of sentences to which prisoners are subjected is a fruitful source of disease and death; and, in separate prisons, operates with more intensity than in the congregate prisons, in which the confinement is less rigid, and the occupations more healthful. Close confinement, which might be borne with impunity for six months or a year, becomes prejudicial when carried beyond this period; and if prolonged to four or five years, often breaks down the health of body and mind, if it does not destroy life.

Fourth. The most prominent cause of the large mortality in

* Emerson on Vital Statistics of Philadelphia, Amer. Journ. of Med. Sciences, July, 1848, p. 19.

† In 1846, there were 13 deaths, of whom 9 entered the institution in imperfect health; in 1847, 9 deaths, of whom 3 entered in imperfect health; in 1848, 16 deaths, of whom 11 entered in imperfect health.

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the prisons of Philadelphia, is to be found in the intolerance of the coloured prisoners of this method of confinement, and their comparative good health under the milder system of associated labour. This peculiarity of the coloured race was noticed very soon after the opening of the Eastern State Penitentiary at Philadelphia, and was made the subject of an able paper by Dr. Benj. H. Coates, of this city, which was read before the American Philosophical Society, in the year 1843, and has since been published.

Ample experience since that time has confirmed the views then expressed by Dr. Coates, and the subject is now claiming renewed attention at the hands of the Prison Discipline Society of Philadelphia.

It appears that of the whole number of 1631 white prisoners received to the close of the year 1848, at the Eastern Penitentiary, 73 have died; and of the whole number of 790 coloured prisoners, 141 have died! (*See* Note to Physician's Report, in Twentieth Annual Report, p. 1.)

At the County Prison, a nearly equal disproportion exists. Of 1526 whites received to the close of the year 1848, 37 have died; while of 1392 blacks, admitted up to the same period, 118 have died! (*See* Second Annual Report of the Inspectors of Philadelphia County Prison, made February, 1849.)

The proportional mortality amongst the coloured population in the community at large, has been supposed by some to account for this wide difference in prisons; but this is found entirely inadequate to explain it.

The average mortality of the white inhabitants of Philadelphia during the decennial period from 1830 to 1840, has been estimated at 1 in 43; while the general average of the coloured population for the same period was 1 in 31, and in the year 1840 it was as low as 1 in 38½*.

It is proper to remark, that another cause for this increased mortality amongst the coloured prisoners, arises from the fact that the average length of their sentences for the same class of crimes is higher than that of the white prisoners; and that they seldom partake of executive clemency. Out of 278 pardons, granted since the opening of the Eastern State Penitentiary, but 25 have been bestowed upon this unfortunate class, notwithstanding the proportion which they bear to the whole number of inmates.

The causes above indicated predispose to the development of

* See Emerson on Vital Statistics of Philadelphia, pp. 18 and 19.

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scrofula and consumption, and it is found that the large proportion of the deaths occurring in our prisons are from these diseases.

The development of insanity in penal institutions, with reference especially to the two systems of confinement known as the separate and congregate, is, at this time, exciting a deep interest both here and abroad. It is generally admitted that a larger ratio of insane to the sane, will be found in all prisons, than in the community at large; while many believe that there is a striking connection between insanity and crime, and a strong proclivity to the commission of outrages against the laws, even on the part of those hereditarily predisposed to mental disease. Some interesting inquiries upon this point have been made by Dr. Given, the present resident physician of the Eastern State Penitentiary, which will be found embodied in the seventeenth annual report from that institution.

It is believed by Dr. Given, that 9.09 per cent. of the prisoners committed there are insane to a greater or less degree, and that 20.20° of them have insane relatives bearing to them different degrees of consanguinity.

If this observation be true in reference to convicts generally, it is not surprising that there should be more insanity in a prison population than amongst other classes. The question for us to consider, however, is, *How far does the discipline of a prison tend to the development of the disease;* or in what proportion of the convicts who enter with sound minds, is it induced?

Upon this point, it is to be regretted that we are not furnished with the same accurate and detailed information as is contained in the admirable tables of physical health before referred to. We have tables, however, from both the prisons of Philadelphia, which present the actual amount of insanity occurring in each year in these institutions, and from the county prison a table showing all the cases which have been under treatment there, from the opening of the institution in 1835, to the close of the year 1848, with the age, sex, colour, date of sentence, period of attack, &c., of each patient. From this we learn that, in the county prison, twenty-three insane prisoners have been under treatment, out of 2,818 who have been in confinement. Of these, 14 are reported as having been insane on admission leaving but 9 cases originating in the prison.

We have no similar table from the Eastern State Penitentiary, but, by reference to the annual tables of insanity (which of late years have been very full and complete), we can ascertain the number re-

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ported for any given period. With a view of presenting the present condition of that establishment, we will refer to the statistics for the past three years, as found in the eighteenth, nineteenth, and twentieth annual reports; premising that only the new cases, originating in the prison, are put down in these tables.

In 1846, 8 cases of insanity are reported, in a population of 308 prisoners in confinement at the close of the year. In 1847, 9 new cases are reported from 294 inmates, and in 1848, 10 cases from 292 inmates. All of these 27 cases are supposed to have been of *sound mind on admission;* 9 were ascertained to have had insane relatives in different degrees of consanguinity; from 7, no information could be obtained on this point, and in the other 11 no such tendency existed. 15 are recorded as entering the institution in good health, and 12 in imperfect health.

The large disproportion here manifest between the two institutions, is probably attributable in a great measure to the same causes which influence the mortality, as before referred to, and also to the fact that the offences for which convicts are confined in the county prison, are of a less grave character, and not so likely to produce mental distress. Another cause may be, that the seclusion in the county prison is much less rigid than in the State institution, prisoners communicating with great ease, and being generally aware of what is going on around them.

It must be confessed, that the large amount of insanity and mortality revealed by the reports of both these institutions, has created in many candid and humane minds, strong doubts as to the safety of the discipline adopted therein. Many believe, however, that these results are not fairly attributable to the system of separate confinement, but that they might be greatly diminished by a more strict regard to hygienic laws, than has heretofore been observed. Such appears to be the opinion of the present efficient medical officer of the State Penitentiary; who thus expresses himself in his report for 1847.

"When speaking of the physical health, I stated my belief that, by proper sanitary regulations, the mortality could be reduced very greatly, without the slightest encroachment on the principles of separation; and now, as regards the mental health, I repeat the same conviction, with even greater confidence in its truth, and, if possible, a more earnest desire to see the necessary measures put in immediate operation." And again, speaking of the insane prisoners in 1848, he remarks: "As regards those who become insane during their im-

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prisonment, some efforts ought certainly to be made to have them placed under more suitable influences for their restoration to health, than has heretofore been the case."

Whatever may be thought of the practicability of the Pennsylvania system, and of the superiority of the principle upon which it is based in a moral point of view, it is evident that, unless the results which have thus far attended it can be altered by an administration more consonant with the laws of mental and physical health, this great experiment in penal discipline, for which Pennsylvania has become so distinguished, must fail of its humane purposes.

In the preceding sketch of the public hygiene of Philadelphia, your reporter has confined himself mainly to the topics suggested in the circular letter of the committee; he has aimed rather to point out defects and growing evils, than to bring to view the varied beauties and advantages, which have given to this city a high reputation, as one of the most healthful and attractive which is to be found in either hemisphere.

Should the labours of this and subsequent committees of the Association be instrumental in directing public attention to abuses in our large cities, and in bringing about salutary reforms, a noble work will have been accomplished; and we may reasonably cherish the hope, that these flourishing seats of intelligence, learning, and enterprise, will become also the abodes of health and salubrity.

In concluding this Report, the undersigned must acknowledge his obligations for the valuable aid furnished in its preparation by G. Washington Smith, Esq., and Dr. Emerson, both well known for the zeal and ability with which they have prosecuted inquiries into the subject of public hygiene, and to Charles A. Poulson, Esq., a member of the Common Council of Philadelphia, and Drs. Elkinton and Jewell, of the Board of Health, for their influence in obtaining prompt replies to the circular of the committee addressed to these bodies.

ISAAC PARRISH.

To Dr. James Wynne, *Chairman of Committee on Public Hygiene, of the National Medical Association.*

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H.—6.

Public Hygiene of Massachusetts; but more particularly of the Cities of Boston and Lowell. By J. CURTIS, M. D.

THE Commonwealth of Massachusetts sustains a prominent position among the States of the Union in the adoption of measures for improving public health. For a long time, its statutes have provided for the registration of births, marriages, and deaths, occurring upon its territory. Its earlier systems, however, subsided into a state of comparative uselessness from their great inefficiency.

In 1842, the Massachusetts Medical Society, the American Academy of Arts and Sciences, and others, memorialized the legislature for a more perfect and operative law on this subject. These memorials resulted in the Act of March 3, 1842, which was superseded by the more effectual one of March 16, 1844. This last act was again revised and materially modified so as to augment its utility, in the act which passed yesterday (May 2, 1849). Yesterday, also, our General Court complied with the petitions of the State Medical Society, the American Statistical Association, and others, by passing a resolve which authorizes the governor to appoint three commissioners, to report to the next legislature a plan for a sanitary survey of the State. This is much in advance of anything that has before been done in this country.

In compliance with the registration laws, seven annual reports have been made by the Secretary of the Commonwealth.* These reports, though quite imperfect, from defective modes of registration in many parts of the State, have nevertheless presented much important information, especially the 2d and 4th, which were enriched with letters from Lemuel Shattuck, Esq., of Boston. Each year has made an advance towards accuracy and completeness of return, showing that the system is becoming better understood, and enlist-

* These annual reports embrace the twelve months ending on the 30th of April, in the year of their date. The city of Boston made no returns to the Secretary of the State, hence the county of Suffolk is not included.

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ing an interest in proportion to the increasing knowledge of its great utility. During the last five years, nearly 80,000 births, 25,000 marriages, and 50,000 deaths, have been recorded. The record of deaths states the date, age, sex, disease, late residence and occupation. From such tables (a summary of which are appended to this Report), especially when they shall be nearer perfect under the late act, computations and comparisons of the highest value may be drawn with different localities in our own country, and other parts of the globe. The influences of climate, season, condition, placement, and occupation, upon human life, may be more or less clearly seen, as well as, also, topical influences upon particular diseases, and the proportional degree with which mortality presses upon different ages.

In the seaboard counties of the State, even after excluding Suffolk county, which embraces the city of Boston, the rate of mortality among children under five years of age, is four per cent. higher than in the western counties. In one of the interior counties (Franklin co.), in the valley of the Connecticut River, the average duration of life was thirty-eight years ten months and twenty-four days; while in the county of Middlesex, which includes the city of Lowell, it was only twenty-eight years two months and twenty-two days. A still greater difference obtains when we compare country districts with cities. In Franklin county, as before stated, the average age was nearly thirty-nine years, while in the city of Boston, it was a little less than 22.75 years, giving an addition of about 16.25 years, or over seventy per cent. in favour of the country district. Again, when we notice the condition of different classes, we find that, although the average age of all dying in Boston was only 22.75 years, the average age of those of them who were buried in the Catholic burying-grounds was but 13.5 years, or about one-third the average life in Franklin county.

In 1846, twenty-eight per cent. of all the deaths in the State were from diseases of the organs of respiration. The mortality from this class of diseases advanced, in 1847 and 1848, to near thirty per cent. Last year, of the 11,203 deaths recorded, 9954 were from specified causes; of these, 2937 were from lung diseases, most of which were consumption; 1202, or twelve per cent., were from typhus,* and 1074, or 10.8 per cent., from dysentery; making 52.3 per cent., or more than half of the total mortality of the State, from

* *Typhus* also embraces "*typhoid fever.*"

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these three causes alone. This shows that death has of late visited our people through consumption, typhus, and dysentery, much more frequently than through any other agents. The mortuary tables show that that most fruitful source of death—consumption—is much influenced by age, very little by season; while the congeners typhus and dysentery are affected both by age and season, as is exhibited by the subjoined abstracts. The period embraced is three years, viz., from 1846 to 1848 inclusive:—

TABLE I.

Ages.	Deaths from Consumption.				Deaths from Typhus Fever.				Deaths from Dysentery.			
	Males.	Females.	Total.	In 10,000.	Males.	Females.	Total.	In 10,000.	Males.	Females.	Total.	In 10,000.
Under 1	107	97	204	296	48	27	75	265	148	122	270	1681
1 to 2	71	51	122	177	54	33	87	308	198	143	341	2123
2 to 5	56	64	120	174	80	85	165	584	185	159	344	2142
5 to 10	47	69	116	169	87	96	183	647	65	49	114	710
10 to 20	190	539	729	1058	234	301	535	1893	37	41	78	486
20 to 30	564	1108	1672	2427	392	308	700	2477	37	57	94	585
30 to 40	446	727	1173	1703	200	157	357	1263	21	42	63	392
40 to 50	329	468	797	1157	91	95	186	658	28	42	70	436
50 to 60	248	352	600	871	90	86	176	623	32	40	72	448
60 to 70	268	325	593	861	70	74	144	510	21	30	51	318
70 to 80	233	367	500	726	77	55	130	460	20	38	58	361
80 to 90	62	90	152	221	22	19	41	145	11	20	31	193
Over 90	2	6	8	12	1	2	3	11	3	3	6	38
Unknown	46	56	102	148	22	22	44	156	8	6	14	87
Totals	2669	4219	6888	10,000	1466	1360	2826	10,000	814	792	1606	10,000

TABLE II.

Months.	Deaths from Consumption.				Deaths from Typhus Fever.				Deaths from Dysentery.			
	Males.	Females.	Total.	In 10,000.	Males.	Females.	Total.	In 10,000.	Males.	Females.	Total.	In 10,000.
May	210	360	570	828	65	53	118	417	7	3	10	62
June	213	331	544	790	98	73	171	605	6	9	15	93
July	239	322	561	814	112	82	194	686	60	63	123	766
August	224	367	591	858	152	154	306	1083	233	239	472	2939
September	241	376	617	896	231	219	450	1592	310	300	610	3798
October	208	369	577	838	225	205	430	1522	135	134	269	1675
November	203	313	516	749	158	144	302	1069	25	20	45	280
December	215	348	563	817	112	118	230	814	9	7	16	100
January	217	346	563	817	70	84	154	545	10	7	17	106
February	210	346	556	807	80	80	160	566	3	4	7	44
March	244	367	611	887	88	77	165	584	6	5	11	68½
April	245	374	619	899	75	71	146	517	10	1	11	68½
Totals	2669	4219	6888	10,000	1466	1360	2826	10,000	814	792	1606	10,000

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The preceding tables show that consumption and typhus press upon the period between twenty and thirty with a force of mortality greater than at any other age; while more than one-half of the deaths from dysentery occur prior to the end of the fifth year of life. Again, we observe that typhus and dysentery, like other diseases of the zymotic* class, are by far the most fatal in the latter part of summer and early part of autumn, being the severest in September; while consumption exhibits much uniformity through the entire year.

Our life records are not sufficiently minute, to show how much the various occupations of life are influenced by the seasons; but the following table will serve to illustrate their effect on longevity, by exhibiting the average ages at death, in some of the more common pursuits, during the five years last past.

TABLE III.

Classes.	Number of deaths in						The average ages were in					
	1844.	1845.	1846.	1847.	1848.	1844 to 1848.	1844.	1845.	1846.	1847.	1848.	1844 to 1848.
Agriculturists	663	645	679	741	739	3467	64.02	61.81	66.63	64.14	65.41	64.40
Labourers	182	219	216	262	424	1303	51.18	48.81	49.44	46.73	43.49	47.93
Mechanics	452	477	538	651	649	2767	45.63	46.96	45.75	46.45	46.06	46.17
Merchants	75	90	81	102	93	441	54.08	48.92	53.04	49.20	51.92	51.42
Paupers	35	5	37	47	32	156	70.91	81.60	69.48	57.62	65.00	68.92
Professional men	82	62	54	74	64	336	43.28	43.93	52.72	51.15	49.87	48.19
Public officers	25	35	34	42	45	181	40.68	44.11	41.06	45.00	40.04	42.18
Seamen	162	145	119	214	188	828	40.12	42.80	48.72	43.04	43.50	43.64
Totals	1676	1678	1758	2133	2234	9479	51.23	52.37	53.35	50.42	50.66	51.61

Since 1840, the subject of improving public health has been more or less agitated; and many writers have urged, with some effect, the claims of hygiene upon the citizens of the State. The excellent little treatise on the "Preservation of Health," by Prof. J. C. Warren, has passed through many editions, and had an extensive circulation. "The Factory System in its Hygienic Relations," being the annual address before the State Medical Society in 1844, by Dr. J. O. Green, has been perused by the profession with interest. The last annual address, before the same body, on "Ventilation," by Dr. L. V. Bell, is a very elaborate and valuable contribution. The well-timed lecture, before a benevolent fraternity in Boston, on the "Circumstances affecting Individual and Public Health," by Dr. C. E.

* *Zymotic*—epidemic, endemic, and contagious. See page 504.

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Buckingham, contains many important topical facts, and ought to have a salutary influence. The works on "Physiology for Schools," by Drs. Cutter, Jarvis, and others, are effecting much good. But, without enumerating here all the useful publications on this subject, we would allude to the following, which deserves more than a passing notice. One of the most useful documents bearing on this point, is the very able Report of the Hon. Horace Mann, as Secretary of the Board of Education in 1843. At that time, of the 150,000 scholars in our public schools, only 416 were pursuing the study of human physiology; while 2,333 were studying the less important branch of algebra. The Hon. Secretary says: "The study of the laws of life and hygiene, or the rules and observances by which health can be preserved and promoted, has claims so superior to every other; and, at the same time, so little regarded or understood by the community, that I shall ask the indulgence of the board, while I endeavour to vindicate its title to the first rank in our schools, after the elementary branches;" and this he does in a very eloquent and convincing manner. Here he aims at a most important principle, that of teaching our children and youth those essential matters, which, if observed, will prevent much sickness, enlarge capacities for happiness and usefulness, and prolong life. When Catiline would subvert the liberties of Rome, he commences by corrupting the minds of its youth; so, also, the most efficient mode of working any great reform is to instruct, properly, the rising generation. The cardinal reason why the laws of health and life are so little regarded at present, is found in the great prevalence of an ignorance of them throughout the community, or, as the writer above quoted has it: "Sheer ignorance of facts and principles, which every parent, *by virtue of his parental relation*, is as much bound to know, as a judge is bound to know the civil or criminal law which he undertakes to administer; or a juror, in a case of life and death, is bound to understand the evidence on which his verdict is to be rendered." "Even educated men," he continues, "who are not physicians, are rare exceptions. The graduates of colleges and theological seminaries, who would be ashamed if they did not know that Alexander's horse was named Bucephalus, or had not read Middleton's octavo volume on the Greek Article, are often profoundly ignorant of the great laws which God has impressed on their physical frame, and which, under penalty of forfeiting life and usefulness, He has commanded them to know and obey." It is this that allows eminent divines, and others of high, general intelligence, to give their re-

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commendations to vague nostrums, and lend their influence to vain pretenders, thus occupying a position where they cast a most baneful shadow upon the vital interests of their fellow-men.

Now, until knowledge on any subject, however practical or important, is disseminated, but little is to be expected; for, unfortunately, men seldom act as well as they know—never better. Knowing that a great change had taken place in the pursuit of life-knowledge in the State, within the last few years, and deeming something definite on the point highly desirable, I inquired of what will be universally acknowledged the best authority, and received the following reply:—

"WASHINGTON, *April 12th*, 1849.

"DR. J. CURTIS—

"*Dear Sir:* Your letter has just been forwarded to me at this place. The information to which you refer was obtained, in 1843, by inserting a question in the blank of the form of school return, which was sent to the committees.

"No such information has been obtained since. Of course, it is impossible to answer your question with precision. The number given must be conjectural. But a vast change has taken place in the public mind since that time, perhaps on no other subject a greater. All the teachers just out from our normal schools are well grounded in the elements of human physiology. They introduce it wherever they go. It has been prominent at all our teachers' institutes. I have lectured upon it hundreds of times to teachers and school associations. My estimate is, that not less than 15,000 of the 170,000 children in our public schools attend to this subject. But this, as I before said, is conjectural.

"Very truly, yours, &c.,
"HORACE MANN."

It gives me great pleasure to comply with the strong request of Mr. Mann in another letter, by still urging increased attention to this most important subject, in the public schools of our commonwealth; for the sad results of violated physical law hereinafter to be noticed, are not so surprising to those who are aware of the general, almost universal lack of proper information.*

* "I will only add that, respecting the laws of health and life, it may be said—though the remark may seem so extraordinary as apparently to amount to a libel on human nature—on no other subject connected with the interests, happiness, or longevity of man,

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Although something has been done in this State, when compared with other States in the confederacy, insomuch that those interested in sanitary improvement, both at home and abroad, have pointed to Massachusetts as having set an example worthy the imitation of her sister States, yet we are far, very far, in the rear of what we ought to be, when the great and vital importance of the subject is duly considered. We have legislated, *usque ad nauseam*, on almost everything but that which concerns us most, namely, the surest sources of health and life, and consequent happiness and prosperity. By legislation, we have protected the beasts of the field, the fowls of the air, and the fish of the sea; by legislation, we have encouraged the arts and sciences, except those which would most directly enable us to live long, useful, and happy; by legislation, we have granted privileges to the manufacturer, developed the resources of the agriculturist, and directly or indirectly offered rewards* for the best cattle, the fleetest horses, and the fattest hogs; have extended inducements for the best buildings, greatest crops, and most improved implements, all of which is most praiseworthy; but we have neglected to use the means for securing attainable longevity and exalted happiness as well as some of the most prolific sources of State wealth.

The City of Boston kept a record of baptisms, marriages, and deaths for the seventy years immediately preceding the American Revolution, which is still extant. Since 1810, the superintendent of burials has kept a record of deaths. Abstracts of these bills of mortality have been printed by the city, and all but two or three of the earliest are still in existence. These statements, as annually made by the officer, since the date of the city charter in 1821, have been consulted, and the whole divided into quinquennial periods, the last being incomplete as to time, embracing only three years. The diseases have been classified according to the plan of Mr. Farr, the English Registrar-General, as modified by Mr. Shattuck, of Boston, and recommended by the American Medical Association, in 1847.

is the darkness of ignorance so profound and universal."—*Sanitary Condition of the Labouring Population of New York.* By John H. Griscom, M. D. New York, 1845: pp. 58.

* The State has paid, through Agricultural Societies alone,

From 1792 to 1845	$115,816 00
In 1846	3,440 00
In 1847	6,631 20
In 1848	7,102 00
Total	$132,989 20

Mem. Mass. Med. Soc., House Doc., No. 66, 1849.

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For the convenience of ready comparison, I have also calculated the per cent. which the mortality from each disease bears to the total from specific causes in each period.* Approaching accuracy in these records is manifested in the fact, that the unspecified causes of death have been reduced from 18.5 per cent. in the first period to less than one per cent. in the last period.

The statistics for the State embrace no period in the tables for Boston, unless it is the last; and typhus and dysentery have prevailed as epidemics so extensively in the State during the last year, as to preclude the propriety of considering the zymotics of this period a fair index of this class of diseases generally; hence, the justice of comparison between the State and its capital, in these diseases at least, is lost.

In 1818 and 1819, *typhus fever* proved quite fatal. It prevailed again in 1835, though not so severely. Since 1846, however, it has been one of the most fatal diseases in Boston. In the year 1847, it caused 673 deaths. *Dysentery* has also prevailed extensively, and been very fatal, not only in Boston, but throughout most parts of New England, during the last two years. The number of deaths in Boston from it was 222 in 1847, and 278 in 1848. It has never been above sixty-five in any year before since 1810. All "*diseases of the bowels*" have likewise very much increased of late. During the last three years, 1079 deaths have been recorded as having been caused by what it was intended to have this vague term express; 781 being the whole number recorded under this head for the thirty-five years previous, 123 of which were in 1845.

The *measles* appeared as a very fatal epidemic so long ago as 1713. In 1730 it was very extensive, but less fatal. It appeared again in 1757 and 1772. It has been much more frequent of late. In the period comprised in the tables, 1821, '25, '29, '32, '35, and '46 were the most fatal. In the last named year, it caused 150 deaths, and only fifteen and sixteen, respectively, in 1847 and '48.

Scarlet fever is said to have been first noticed in 1735 and '36, when it was quite general and very fatal throughout New England. It is stated that 4000 were sick with it in Boston, and one in thirty-five of them died. At this date, the town contained only 9000 inhabitants. In one of the neighbouring country towns, where nine

* We take the calculations for the period 1841 to 1845 inclusive (with some transpositions), as made out by Lemuel Shattuck, Esq., of Boston. We here also take pleasure in acknowledging our indebtedness to him for many important hints and points of information.

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or ten was the usual annual number of deaths, it swelled the bills of mortality to 102, and an equal increase of deaths occurred in other places. We find but few deaths from the disease after this, till 1832, when it was quite fatal, as it also was in 1839, '42, and '44. Of late, it has attacked the younger members of some of the most healthy families in this city and in Lowell, and been very rapid in its progress, frequently terminating fatally in twenty-four or forty-eight hours.

The *small-pox*, so fatal previous to Jenner's discovery of vaccination, is on the increase. In 1836, the law which required all patients of this disease to be removed to the hospital, was repealed. During the last ten years, there have been 496 deaths from this disease in this city; there were but fifty-three for the thirty years previous. Within the last two weeks, our General Court have refused to revive the wholesome law that was repealed in 1836, although Boston has not been free from this loathsome disease since its repeal.

Boston was afflicted with epidemics of small-pox in 1649, 1666, 1678, and 1690. In 1698, Mather writes, "The small-pox has four times been a great plague among us."—"Often had one hundred bills, desiring prayers for the sick, been read in one day, in one of our assemblies. In one twelvemonth, about one thousand of our neighbours have been carried to their long home." In 1702, 4.4 per cent. of the inhabitants died with it. The most violent epidemic was in 1721, when 6006, being 54.6 per cent. of the population, had it; of whom 14.3 per cent. died. It was during the severity of the disease at this date, that the Rev. Dr. Mather called the attention of the faculty to an article on inoculation in a foreign journal. Dr. Boylston took the hint, and in opposition to the influence of his professional brethren, introduced inoculation into this country, commencing with his own son. Of those who were inoculated, one in forty-two died; of those who "took it in the natural way," as it was called, one in seven died. Notwithstanding these results, the opposition was so great that Dr. Boylston found it unsafe to leave his dwelling in the evening.* The prejudice appears to have been equally great in other countries.† The cry, sometimes heard at the present day in such cases,‡ was raised, that it was an impious interference with the judgments with which God was

* Blake's Biog. Dict. Chambers' Inform. for the People, *et alia.*

† See Lady Montagu's Letter from Adrianople, April, 1717, &c.

‡ See Prof. Simpson on Anæsthesia.

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pleased to scourge his chosen people! The following table from Mr. Shattuck* furnishes a view of the prevalence and results of this disease during the eighteenth century:—

TABLE IV.

Years.	Cases.	Deaths.	Per cent. of pop.		Natural.			Inoculated.		
			Cases.	Deaths.	Cases.	Deaths.	Per cent	Cases.	Deaths.	Per cent.
1721	6006	850	54.6	7.7	5759	844	14.8	247	6	2.4
1730	4000	500	26.6	3.3	3600	488	13.5	400	12	3.0
1752	7669	569	48.9	3.6	5545	539	9.7	2124	30	1.4
1764	5646	170	36.4	1.1	669	124	18.5	4977	46	0.9
1776	5292	47	44.1	1.0	304	29	9.5	4988	18	0.5
1778	2243	71	16.6	0.4	122	42	34.4	2121	29	0.9
1792	8346	198	46.	1.0	232	33	14.2	8114	165	1.8

From Mr. Shattuck we also learn that the proportional mortality between the white and coloured population, during two epidemics, was as follows:—

TABLE V.

	Natural.			Inoculated.		
	Cases.	Deaths.	Per cent.	Cases.	Deaths.	Per cent.
1752.						
Whites	5060	470	9.2	1985	24	1.2
Coloured	485	69	14.2	139	6	4.3
Total	5545	539	9.7	2124	30	1.4
1792.						
Whites	214	27	12.5	8808	157	1.7
Coloured	18	6	33.3	348	7	2.0
Total	232	33	14.1	9152	164	1.8

Vaccination was introduced in 1799, after which, this repulsive disease was nearly annihilated until within the last ten years, when it has prevailed epidemically in 1840, and the winter of 1845–6.

Diseases of uncertain or general location have varied only 1.5 per cent. prior to 1840. Had the periods embraced ten years each, viz., 1821 to '30, 1831 to '40, and 1841 to '48, they would have stood 7.31, 7.50, and 7.56 per cent. respectively. Atrophy has considerably increased, while dropsy has decreased. "Sudden deaths" have also decreased, owing, no doubt, as in some other cases, to more accurate returns by physicians.

Diseases of the nervous system have maintained a higher per

* "Census of Boston," page 144.

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cent. than the same class in the State. Those which more especially afflict children, as convulsions, hydrocephalus, &c., have generally increased.

The *organs of respiration* furnish a high ratio for a class of diseases no larger than this. The tables show increased accuracy in returns, and indicate that consumption has somewhat diminished. Tubercular diatheses, effected by the debilitating influences of city life, have, doubtless, sent off some to typhus and dysentery.

Diseases of the digestive organs have increased from 5.38 to 15.01 per cent. There is a great tendency to bowel complaints, both those of a zymotic and a sporadic character, among city inhabitants, especially the younger portion, and during the summer and autumn months.

Class V., and Classes VII. to X. inclusive, are quite small, and produce an aggregate of only 3.85, or an average of .77 per cent. of deaths.

I have ranked the indefinite terms "*infantile*" and "*old age*" together. Justifiable reasons for this, I think, will appear obvious to vital statists.

The *seasons* are acknowledged to exert great influence on health and mortality. By reference to Table XXVII., it will be seen that September was the most fatal month previous to 1840, and August since that time. This change has been quite gradual; and Mr. Shattuck has shown that the greatest number of deaths took place in October before 1820. He has also shown that the seasons do not affect all ages equally. We quote from him the annexed table, embracing five years, viz., 1841 to 1845 inclusive:—

TABLE VI.

Months.	Number of deaths.				In each 10,000 deaths, there were			
	Under 15	15 to 60	Over 60	Total.	Under 15	15 to 60	Over 60	Total.
January	438	292	96	826	421	280	92	793
February	431	315	84	830	414	302	80	796
March	373	306	87	766	358	294	83	735
April	421	322	100	843	404	309	96	809
May	425	330	101	856	408	316	97	821
June	356	291	82	729	341	279	79	699
July	475	296	75	846	456	285	71	812
August	698	335	64	1097	670	322	61	1053
September	671	327	88	1086	644	314	84	1042
October	449	339	77	865	431	325	74	830
November	377	351	80	808	362	337	76	775
December	429	337	104	870	412	323	100	835
Total	5543	3841	1038	10,422	5321	3686	993	10,000

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"These deductions," he says, "show the interesting fact, that August, September, and October, which are most unhealthy to persons under 15 years of age, are the most healthy to those over 60; and that the winter months affect the health of old people most unfavourably; and that in the productive ages—15 to 60, the seasons have little or no influence in increasing or diminishing the number of deaths.

"If the published annual abstracts of the deaths had exhibited, as they should have done, the number of deaths by each disease, at each age, in each month, they would show, it is believed, that the principal increase of deaths in the unhealthy months is from diseases of the digestive organs, which prevail among children."

As we turn our attention to the *ages* at death, we approach a most interesting and important point in our investigations. It is a point which seldom receives merited examination, and to make it as clearly understood as its importance demands, would compel us to transcend the proper limits of this report. This, however, has been done to a considerable extent, and with much labour by Mr. Shattuck, the zealous advocate of hygiene, to the published results of whose investigations we must content ourselves to refer.*

The city of Boston contains not far from sixty-five miles of streets, and I learn, in a letter from C. B. Wells, Esq., the Superintendent of Sewers, that "The city has about twenty-five miles of common sewers under its control, varying from sixteen inches to five feet in the clear. Much complaint is made," he adds, "on the 'South Cove,' so called, of imperfect drainage, in consequence of the drains being constructed upon almost a dead level, and with no chance to remove the sediment which remains in the common sewer, and gradually fills it up. The same remarks will apply to certain sections of the southerly part of the city which drains the 'Back Bay,' so called." Here, then, we find only twenty-five miles of sewerage to sixty-five miles of streets, and even the sewers which do exist are very imperfect in their action, and becoming still more so from various causes. Mr. George H. Bailey, the Engineer to the Water Commissioners, informs me that, in laying pipe for water, in some places they have interfered very much with the sewers, occasionally so nearly obliterating them as to abridge their utility very essentially. In many places, also, in crossing streets, the water-pipes pass directly through the sewers only a few inches from their lowest part, thus assisting in the work of obstruction, not only by their own

* "Census of Boston," *et passim.*

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presence, but also by staying substances on their tardy progress to the outlet. In answer to some inquiries, we received a letter from Dr. C. E. Buckingham, one of the physicians to the Boston Dispensary, from which we extract:—

"BOSTON, *Dec.* 7, 1848.

"MY DEAR SIR: The soil of Boston rests directly upon granite. The surface is mostly imposed matter, a very large portion of which is filled with organic substances in a state of partial decomposition. Much of the city is new land, built of mud from the flats, and refuse from the houses in the older parts.

"The city is but partially drained. Such parts as are in the best condition are partly furnished with brick sewers of a sufficient size. Many of these, however, at this time, are from one-half to two-thirds filled with mud. There are no real impediments to drainage in the older town; but much of the newer is so low, that the drains must be lower than high water mark; and there is no possibility of getting sufficient descent to flush them.*

"There is a Superintendent of Sewers, whose sole duty it is to oversee the building and cleansing of main sewers, drains, &c., but he is under the direction of the Board of Aldermen, who cannot be perfectly informed upon this subject, owing to the nature of their occupations. He is, of course, hampered by the want of power to flush and clear out at discretion. The city does not drain any alleys or streets that are less than thirty feet wide. There are many such, and they are drained or not, according as real estate owners see fit.

"The mode of street cleaning is by manual labour. The courts and alleys are, with few exceptions, occupied by the poor, and, generally speaking, are not cleaned even. The refuse from the houses (dry dirt) is placed in barrels, and taken away by the city carts to build new land with: such part of the remainder as is fit for pigs, is taken to the city stalls for that purpose. Almost all the houses are provided with privies into which chamber slops are thrown. There are some houses, however, unprovided with these buildings;

* In another place, Dr. B. remarks: "Speculation has built up houses and streets long before the new ground has become solid, and at such slight elevation, that waste water can run off only with the tide's fall; and, on its return, the water is, in some places, to be heard under the houses, and instances are not unknown where the water regularly comes up so as to be seen from the rooms below. I have seen the tide pouring into a back yard, from all four sides, to the depth of a foot; and have known men to sail around their kitchens in pursuit of their dinners, and coast along the shores of their cellars in tubs for their winter's wood!"—*Lecture on Individual and Public Health*, p. 19: Boston, 1848.

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in such cases, as well as some others, excrement is thrown into the yard, and even under the lower floor of the houses. The dwellings of the poor are mostly filthy, often from neglect on the part of the occupants, as often from neglect on the part of the landlords, who get large rents, and do not provide suitable drains, privies, yards, &c.

"The number of families in a house varies with the number of rooms. I have found from six to forty or more in one house of two stories, eleven and more in one room constantly, and eight in one bed (men and women). This latter was in a physician's house!

"The municipal regulations are far from effective. We need a health commissioner, who, in this matter, should be dictator, with power to order drains, privies, and fresh water where needed, and to turn out any excess of population from houses and streets.

"I have thus given you a very imperfect answer to your questions. My investigations of late have been less than I could wish; but every new visit shows me so much that is new and disgusting, that my knowledge of the city hygiene of a year since seems nothing.

"I remain, my dear sir,
"Very respectfully yours, &c.,
"CHAS. E. BUCKINGHAM.

"JOSIAH CURTIS, M. D.,
"*Lowell.*"

The subject of ventilation is scarcely regarded. No public buildings are adequately ventilated. Some of the public schools have been supplied with very imperfect ventilation, on an old plan recently revived by Mr. Emerson.*

The water commissioners state that, prior to March 9th, 1849, the sum of $3,448,974 85 had been expended for the introduction of water. Their engineer informs me that fifty-eight miles of pipe (exclusive of service-pipe) have already been laid, and over 7500 buildings are now using Cochituate water. These pipes vary from four to thirty-six inches calibre. Here are provisions for the estimated want of about 7,000,000 gallons of water daily, to be impured

* The pride of Boston consists largely in its Latin school, twenty grammar schools, and 165 primary schools, employing 330 teachers, with an aggregate salary of $167,550 75, annually. Of this, the amount above the demands of the law, which may be considered a voluntary contribution, exceeds the sum expended in the whole of Great Britain. It is a little strange that all this should be done, and some of the obvious principles of hygiene so little thought of.

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by use and carried off by the scanty and ill-conditioned drains and sewers of the city.

Lowell.—Scarce a quarter of a century has elapsed since the site of the present city of Lowell was a wilderness. What of importance it lacks in age, when compared with other places, is more than counterbalanced by the character and occupation of its inhabitants. If not the oldest, it is much the largest manufacturing community in our country.

The first factory here commenced operations in 1823; the second in 1825; two more commenced in 1828, &c. Lowell now has twelve large incorporated companies, which run about fifty mills, 310,000 spindles, 9359 looms; and employ near 10,000 females, over 4000 males; and possess a capital stock of $12,110,000. Besides, there are many smaller companies.

By reference to Table XXXV., it will be noticed that our population possesses several important characteristics. First, it has increased very rapidly. This is owing to an influx from other places to meet the demand for labourers in our various manufacturing establishments. Secondly, it will be observed that a large preponderance, amounting to nearly two-thirds of our community, are females; and thirdly, that a larger proportion than in almost any other community—in the Atlantic States, at least—are embraced between the ages of ten and thirty. These characteristics are not altogether favourable to permanency of residence in our city, especially to those of somewhat feeble health, whose friends are mostly back in the country. If, in the census of 1830, we take the number 999, who were under ten years of age, and follow them in the census of 1840, they will be found between ten and twenty. But here are 4833, leaving an excess of 3834 between those ages who were not here in 1830, but since that time have taken up their residence here for a longer or shorter period, and were still here in 1840. Besides these, a very large number have sojourned among us for some time during the period bounded by the dates of the censuses, but had left before that period terminated. Again, there were 1587 in 1830, between the ages of ten and twenty, and in 1840 we find the number between twenty and thirty increased to 7711, showing that 6124 were added to this class during the same ten years; and here, as in the former case, just about seventy-five per cent. of this increment were females. When we advance another step, we discover a diminution instead of an augmentation to the

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class. For the purpose of completeness on this point, the following abstract is given—the population of 1830 being placed ten years in advance:—

TABLE VII.

	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	Over 60	Total.
Males.							
1840	1,369	2,143	1,128	520	224	92	7,341
1830	495	405	958	358	111	58	2,392
Difference.	874	1,738	170	162	113	34	4,949
Females.							
1840	3,464	5,568	1,605	650	318	170	13,640
1830	504	1,182	1,792	353	164	86	4,085
Difference.	2,960	4,386	—187	297	154	84	9,555
Totals.							
1840	4,833	7,711	2,733	1,170	542	262	20,981
1830	999	1,587	2,750	711	275	144	6,477
Difference.	3,834	6,124	—17	459	267	118	14,504

It has been estimated, from somewhat extensive researches, that "the average time during which the female operatives work in the mills, is between four and five years;"* many observers, however, have placed the time considerably shorter. These peculiarities should be borne in mind, when our mortuary tables are compared with those of other localities.

The Rev. Mr. Allen states the number of deaths in the town of Chelmsford, of which Lowell was a part till 1826, to have been on an average of sixteen annually, for the seventy years previous to 1825.† There were forty-one deaths in 1825. No report was made in 1826. In fact, much obscurity envelopes the bills of mortality for the next succeeding ten years. The following table is the result of an examination of all reliable reports extant, previous to 1836:—

* "Lowell as it Was, and as it Is," p. 194.

† Chelmsford, Phœnix, Jan. 6th, 1826.

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TABLE VIII.

Months.	1827.	1829.	1830.	1831.	1832.	1833.	1834.	1835.
January	3	5	9	19	12			
February	3	4	5	7	11			
March	3	5	20	6	19			
April	7	8	11	8	14			
May	4	3	5	6	7			
June	2	3	4	7	14			
July	2	4	4	13	10			
August	9	5	6	12	22			
September	7	11	11	11	14			
October	8	3	11	10	12			
November	1	6	13	8	25			
December	1	5	15	17	24			
Unknown		4						
Total	50	66	114	124	184	223	225	236
Still-born included.	Unkn'n	Unkn'n	11	7	6			

The deaths in 1828 were stated by Dr. Elisha Bartlett, at the time, to have been thirty-two. "Among the 1500 females employed in the mills," he adds, "there did not occur, during the year, a single death."*

The bills of mortality since 1836, as returned by the Board of Health, and the superintendent of burials, have all been printed, and been filed in the city clerk's office; but they are very crude and meagre in point of important facts, though they are very accurate so far as they go. Indeed, Lowell is doubtless as *accurate* in mortuary records as any place in the country.† These abstracts, published by the city, have all been consulted with great care, and classified; and the ratio of mortality from each disease calculated in quinquennial periods, since the date of the city charter in 1836, forming Table XXXI., accompanying this report.

By reference to this table, we find that the causes of 5,718 of the 6,437 deaths that have occurred during the last thirteen years, have been stated. The deaths from causes not specified in the periods from 1836 to '40, 1841 to '45, and 1846 to '48, have been respectively, 245, 141, and 64; exhibiting increasing accuracy on this important point.

In consulting the tables, and examining the various causes of death, as classified, and comparing them with the similar tables for

* Lowell Courier, January 1829.

† "It is not pretended that the bills of mortality are absolutely correct; but the daily record of deaths is faithfully kept, and it is believed to be more accurate than that of any other city of its size in the country."—*Report of City Physicians for* 1848.

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the State and the city of Boston, we discover some remarkable differences. The first which we notice is the higher proportional rate of mortality which obtains among epidemic, endemic, and contagious diseases, under the general term of *zymotics*. Says an earnest writer on public health, already frequently referred to, "It is the property of zymotic diseases to prevail more at one season than at another, or more in one locality than another; and to become epidemic, endemic, or contagious, under certain circumstances. The best index to public health," he justly observes, "may be deduced from the proportion in which these diseases prevail." The proportion which this class sustained to all the deaths from specified causes in the State during the last five years, and in the cities of Boston and Lowell, during the last eight years, was respectively, 27.98, 29.46, and 42.15 per cent. In Lowell, 20.66 per cent., or nearly one-half of these were from typhus and dysentery. In Boston, there has been no quinquennial period covered by the tables, when the per cent. of deaths from this class of diseases has been as high as thirty; while in our city, in no such period has it fallen as low as thirty-five. This, certainly, should arrest attention, and lead to an investigation of the causes of such results; and the causes should be removed; but, unfortunately, they are still at work, and on the increase! The following abstract exhibits a comparative view of deaths from zymotic diseases.

TABLE IX.

Places.	1836 to 1840.		1841 to 1845.		1846 to 1848.	
	Deaths.	Per cent.	Deaths.	Per cent.	Deaths.	Per cent.
State					7,524	29.18
Boston	2,122	26.51	2,892	28.36	3,147	29.96
Lowell	555	37.94	658	35.47	1,172	48.83

In Lowell, the deaths from different causes were as follows:—

TABLE X.

Classes.	Number of deaths			In each 10,000		
	1836 to '40	1841 to '45	1846 to '49	1836 to '40	1841 to '45	1846 to '48
Zymotics	555	658	1,172	3,794	3,547	4,883
Sporadics	719	980	1,005	4,918	5,284	4,188
Age and external causes	189	217	223	1,288	1,169	929
Total.	1,463	1,855	2,400	10,000	10,000	10,000

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It is well known that from 1841 to 1845 inclusive, was a remarkably healthy period; and we accordingly find in it the lowest per cent. of deaths from zymotics. This corroborates the opinion just quoted from Mr. Shattuck, that the proportion of this class is generally a correct index to the health of any locality. The annual average of deaths during this period was less than 400. In the next and last-mentioned period, it was a little over 821.

Typhus, and dysentery, have prevailed as epidemics since 1846. The deaths from them were as follows:—

	1846.	1847.	1848.	Total.
Typhus,	103	147	72	322
Dysentery,	23	206	152	381

In the epidemic dysentery of 1847, about one in twelve of our population was sick with it; and not far from one in twelve of those who had it died. Of the deaths by this disease, July furnished 25; August, 93; September, 63, and October 15; other months, 10. *Croup* has gradually increased, and *scarlet fever* has decreased until quite lately, there having been no very extensive epidemic of this much dreaded malady.

Sporadics were the lowest in the last of the three periods. The first division, embracing those under the head of *uncertain* or *general location*, are characterized by much uniformity—deviating not far from 4 per cent. This is as might have been anticipated in accurate returns, as the laws which govern them are nearly constant.

Diseases of the nervous system have caused nearly one-twelfth of all the deaths. The most fatal of this class were hydrocephalus and convulsions among the young, and inflammation of the brain among adults. One death, ranked in this class, was from that frightful disease—hydrophobia.*

The fatality from diseases of the *respiratory organs*, claim for this class a rank next in importance to the zymotics. A little less than one-fourth of all the deaths have occurred from this class of diseases; and all but about one and a half per cent. of these were of consumption and inflammation of the lungs. In our climate, tubercular consumption proves most fatal among the agents of death. It insidiously encroaches upon the most delicate and interesting of the population. No class of our citizens, no sex or age, locality, or season, is exempt from its mortal ravages. It has been constantly

* The particulars of this case with autopsic observations, by "J. C." will be found in the *American Journal of the Medical Sciences*, Philadelphia, April, 1849.

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among us, and every third day chronicles one of its unfortunate victims in our city!

The next class embraces the small family of diseases of the *organs of circulation*, which, though few in number, have somewhat increased.

Sporadics of the digestives embrace a large, but less important class of diseases than those zymotics which involve these organs. Inflammations of the stomach and bowels have proved most fatal with adults, and teething with children.

The organs of urination are subject to but few diseases, as also those devoted to the propagation of our kind, and the latter have decreased in fatal affections. Diseases of the bones, muscles, and skin, comprise the next two classes, and their number is very small. Many otherwise undefined causes of death in the extremes of life—the infant and the antiquated—have next been classed together. Nearly nine-tenths of this class were removed by death in early life.

The heterogeneous group under the class of external causes have been gradually decreasing. Fatal accidents in various ways are not unfrequent in a place like Lowell; and, it is not surprising that these should have somewhat increased.

The number of deaths from each sex will be found in Table XXXII. In each year, with the single exception of 1841, has the mortality of females exceeded that of males; but the proportion of the deaths among females to the living of that sex, has been less than the analogous ratio among males. In the years when the censuses were taken, the following proportions to the living existed:—

TABLE XI.

	1836.			1840.			1844.			1846.
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Total.
Population	6345	11,288	17,643	7341	13,640	20,981	9432	15,697	25,129	29,127
Deaths	113	140	253	186	199	407*	163	196	362*	690
1 death in	56.16	80.63	69.70	39.47	68.20	51.55	57.93	80.87	69.00	42.21
In 100	1.79	1.23	1.43	2.53	1.47	1.94	1.73	1.24	1.44	2.37

The above table shows the remarkable result, that, among the male population in the years of 1836, '40, and '44, there died one

* In the total of deaths for 1840, there are 22 whose sex was not stated. In the year 1844, there were also 3 whose sex was not stated.

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in 56, 39.5, and 58: while among the other sex, in those years, the deaths were one in 81, 68, and 81 respectively.

Lest these isolated years, for some cause, should not prove a fair index, in their unexpected results, I have calculated the average population for the periods from 1836 to 1840, and from 1841 to 1845. Also, the average number of deaths for the same periods, and deduced therefrom the following results:—

TABLE XII.

	1836 to 1840.			1841 to 1845.		
	Males.	Females.	Total.	Males.	Females.	Total.
Population	6,843	12,464	19,307	10,329	18,814	29,143
Deaths	159.8	177.4	341.6	186.4	209.0	399.2
One death in	42.83	70.26	56.52	55.31	90.19	73.03
In 100	2.332	1.423	1.804	1.808	1.108	1.369

These figures corroborate the results in the former table, and substantiate the general truth that, in Lowell, the agents of death press with much greater force on the male than on the female sex. One reason for this, doubtless, arises from the fact that so large a portion of our female population are sojourners here for a few years, and when they discover declining health, they retire to their homes in the interior country towns, to enjoy the invigorating and recuperative influences which are not found in a dense city, or to spend their final days among kindred and friends.

It is conceded that the *seasons* exert much influence on health and life, especially in cities. Table XXXVII. will exhibit the range of the temperature of the air, and show some of our climaterial changes.

By consulting Table XXXIII. in the proportional mortality for the months, June will be found to have been the most healthy month in the aggregate, while August has universally been the most fatal. The seasons appear thus, for the thirteen years from 1836 to 1848 inclusive:—

	No. of deaths.	In 10,000
January, February, March	1245	2056
April, May, June	1252	2034
July, August, September	2271	3616
October, November, December, ...	1400	2294
Total	6168	10,000

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This shows the summer months to have been by far the most fatal; although, at this season, large numbers of our citizens resort to the country for comfort or health. This is the time, too, when many a loom is silent, and many a spindle still—the operatives embracing this sickly season to be released from their labours, and enjoy a visit at their rural homes. Notwithstanding all this, there is a much greater difference in the health of Lowell at different seasons, than there is in the health of Boston. Of the deaths in Boston, from 1821 to 1848 inclusive, the months of

January, February, and March furnished		23.14	per cent.
April, May, and June	"	22.19	"
July, August, and September	"	28.64	"
October, November, and Dec'r	"	26.03	"
		100.00	

The difference between the highest and lowest rate as above, is only 6.45 per cent., while the difference between the highest and lowest in Lowell is 15.82 per cent. In Boston, it was shown (Table VI. p. 497) that the high rate of mortality in that city during the summer season fell almost entirely on the younger part of the community. In 1845, 22.5 per cent. of their population were under ten years of age, and in 1844 only 19.2 per cent. of our population were under that age. Now, had we the necessary data at our command, it would be exceedingly interesting to ascertain if all of the greatly increased rate of mortality during the summer, in Lowell, was inflicted upon the diminished proportional number of the young; but, unfortunately, we have not the means.

The ages at death furnish a point of great importance in our investigations, as has been already remarked. The first thing we notice in Table XXXIV. is the high per cent. of deaths in early life. More than one-fifth of all the persons who have died in Lowell since 1836, were under one year old; and nearly one-half were under five. In the State, during the last five years, those who met death before they had lived five years, constituted 34.06 per cent. of all deaths. In Boston, during the last quarter of a century, the per cent. was 42.26; and in Lowell, during the last thirteen years, it was 46.46. This confirms the universally received opinion that cities are peculiarly unfavourable to viability; and gives definiteness to the fact. The philanthropic inquiry arises, cannot some means be put into operation which will avert, at least a part of this heavy fatal force which is pressing upon those of tender age in city communities? If, as Jefferson stated, "great cities are great sores on

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the body politic," in a political sense, they are not less so in a physical sense. After the age of ten, the Tables seem to indicate that the proportion diminishes till we arrive at the age of twenty, when it takes a sudden rise during the succeeding decennial period, from which it falls *gradatim* to extreme senility. Before deciding, however, at what age individuals are most liable to die, we must introduce another element of information. Let us institute another mode of inquiry, by comparing the deaths at different ages with the living at the same ages. The subjoined tables will show this.

TABLE XIII.

	Under 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	Over 60	Total.
Average population, 1836 to 1840	3369	4469	7300	2497	1009	454	209	19,307
Average deaths	175.2	37.4	50.6	31.4	19.0	14.4	12.0	341.6
Being 1 death in	19.23	119.49	144.27	79.53	53.10	31.53	17.42	56.52
In 100 . .	5.200	.837	.693	1.258	1.883	3.172	5.741	1.804
Av. population, 1841 to 1845	5181	6713	10,711	3796	1625	753	364	29,143
Av. deaths . .	211.2	37.0	55.6	39.8	21.6	15.2	16.4	399.2
Being 1 death in	24.53	181.43	292.64	95.38	75.23	49.54	22.20	73.03
In 100 . .	4.077	.529	.342	1.048	1.329	2.018	4.504	1.369

These calculations show the probabilities of living to be the greatest at the period of life between twenty and thirty; and the next greatest between ten and twenty; then they follow between forty and fifty; fifty and sixty; under ten, and the least over sixty. In the city of Boston, we find similar results; the greatest probabilities of living, however, are one decade earlier. They run thus: Greatest probabilities of surviving the present period, between ten and twenty; the next greatest between five and ten; they then follow, between twenty and thirty; thirty and forty; forty and fifty; fifty and sixty; sixty and seventy; under five; between seventy and eighty; eighty and ninety; and the least over ninety. In that city, there has been a gradual and constant proportional increase of mortality among children under five years of age. The deductions for Lowell, from 1841 to 1845, it will be observed, are more favourable in all ages than those during the next preceding quinquennial period. But it has already been shown that the former was a very healthy period. The results of our investigations on other points warrant us in the statement that, had we the necessary data to examine and compare the mortuary bills for the three years last past, we should find in them the rate of mortality considerably

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advanced. It is to be regretted that no means exist, by which we can ascertain, even with any reliable approximate accuracy, what the results would show.

The following table will exhibit the force with which some of the most fatal diseases have pressed upon different ages as well as sexes, during the last three years.

TABLE XIV.

	Consumption.	Dysentery.	Typhus.	Hydrocephalus.	Croup.	Cholera Infant.	Teething.	Infantile.	Totals.
Males.	137	166	146	52	48	68	13	92	722
Females.	218	215	176	53	38	59	14	39	812
Total.	355	381	322	105	86	127	27	131	1534
Under 1	6	41		35	17	78	13	131	321
1 to 2	8	82	4	35	19	41	14		203
2 to 5	7	78	15	20	42	8			170
5 to 10	5	27	15	8	8				63
10 to 20	54	33	89	4					180
20 to 30	114	49	128	2					293
30 to 40	64	21	30	1					116
40 to 50	44	16	24						84
50 to 60	25	12	11						48
60 to 70	21	13	5						39
Over 70	7	9	1						17
Total.	355	381	322	105	86	127	27	131	1534

The city of Lowell presents a very extensive field, by embracing the subject of manufacturing, as it influences health. This topic, however, is not sufficiently limited to receive a full investigation in our brief remarks. It must satisfy our present purpose, therefore, to allude to some of its more prominent features.

A subject of so grave a character, has not remained to the present day without discussion. Unfortunately for the true merits of the question, however, it has hitherto been handled principally by politicians and partialists. Antagonistic parties have made statements and counter-statements, and too often, such only as would best make capital in favouring the views of each. It is a most important subject, and should be approached, even for brief statements, with the utmost candour and strictest impartiality. There appears generally, not only a willingness, but a desire, on the part of the high-minded and humane gentlemen who have the charge of these manufacturing establishments, to have the matter fairly treated and the exact truth made known. The general public feel equally interested and anxious to obtain unbiassed facts.

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So many elements of information, and these of such a nature, are called into requisition, that, to give it the critical and plenary consideration it so richly merits, would be to surmount insuperable difficulties. Some of these obstacles will manifest themselves as we progress.

Our population now numbers not far from 33,000. Near one-half of these are directly connected with manufacturing, of whom three-fourths or four-fifths, are probably employed by the twelve principal corporations. These twelve companies manufacture annually, some hundred million yards of cotton; one million one hundred and fifty thousand yards of woollen; and three hundred and fifty thousand yards of carpeting. They also print some twenty million yards of calico; bleach four millions five hundred thousand pounds; and dye one million five hundred thousand yards. This requires some thirty-five millions of pounds of cotton; and two millions four hundred thousand pounds of wool. They consume twenty-five thousand five hundred tons of anthracite coal; thirty-six thousand five hundred bushels of charcoal; eighty thousand gallons of oil, and thirty-five thousand of lard. The amount of wages paid monthly is over two hundred thousand dollars, or near two millions five hundred thousand dollars per annum. The mills are all warmed by steam, and run the same hours, as follows:—

TABLE XV.

Months.	H.	M.	Months.	H.	M.	Months.	H.	M.	Months.	H.	M.
January,	11	09	April,	13	16	July,	12	30	October,	11	55
February,	11	45	May,	12	30	August,	12	30	November,	11	41
March,	11	37	June,	12	30	September,	12	08	December,	11	09
Daily average for the year, twelve hours and thirty-three minutes.*											

Let us now confine our attention to a single corporation, and *ex uno disce omnes*. The Merrimack is the oldest in Lowell, the largest, and probably as favourable a specimen of cotton manufactories, as can be selected in New England. This establishment has extended every desired facility to me for accurate investigation. They employ between 1300 and 1400 females, and about 350 males, whose aggregate wages vary but a trifle from $1000 per diem, at the present

* Twelve hours and thirty-three minutes embrace the average time of *running the mills*. Many of the operatives are not actually at work all this time. The mills ran an average of twelve hours and forty-eight minutes, prior to May 1st, 1847.

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time; previous to the reduction of wages in November last, it amounted to $1,200 per diem. I take the following abstracts from their books, covering the last nine years.

TABLE XVI.

Female Operatives.

Years.	Whole number employed.					Whole number left.					Average No. of months they remain on this Corporation.
	Monthly average.	Maximum.		Minimum.		Monthly average.	Maximum.		Minimum.		
		Month	No.	Month.	No.		Month.	No.	Month.	No.	
1840	1355	June	1511	Oct.	1191	175	Aug.	265	Jan.	96	7.74
1841	1343	May	1465	Sept.	1223	152	Aug.	245	Jan.	93	8.84
1842	1330	Jan.	1359	Sept.	1277	152	Aug.	240	April	92	8.75
1843	1277	Jan.	1304	Aug.	1166	139	July	205	Feb.	89	8.12
1844	1261	June	1356	Jan.	1226	125	Sept.	186	March	66	10.09
1845	1255	June	1362	March	1201	132	Sept.	213	Jan.	68	9.51
1846	1248	May	1442	Jan.	1217	121	Aug.	197	March	69	10.31
1847	1264	May	1367	Sept.	1121	141	Aug.	241	Dec.	87	8.96
1848	1438	Oct.	1741	Jan.	1205	175	Oct.	248	Feb.	62	8.21
Annual averages.	1308					146					8.95

Male Operatives.

Years.	Monthly average.	Maximum.		Minimum.		Number of yards manufactured.
		Months.	No.	Months.	No.	
1840	224	October	245	January	205	12,254,286
1841	259	July	308	January	226	12,495,393
1842	232	July	257	February	212	12,681,697
1843	217	October	240	March	187	12,064,690
1844	218	September	232	March	210	12,809,424
1845	296	September	444	January	196	13,313,594
1846	443	August	622	January	276	13,024,020
1847	387	May	455	March	314	12,918,921
1848	347	September	369	February	317	15,382,103
Annual averages.	287					12,993,792

This company has five mills,* each having five halls or rooms, 151.7 feet long, 40.6 feet wide, and 10.5 feet high, giving 64,670 cubic feet to a room. They own 178 houses, 35 of which are devoted to female boarders, and 10 to males; the remainder are occupied as tenements by the families of the married men among their

* A sixth mill, of larger dimensions, has recently gone into operation; but the number of persons to work in it is correspondingly increased. In essential hygienic particulars, therefore, it does not differ from the others.

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employed. A part of these boarding-houses have been recently constructed, and are a superior class of buildings. Forty-five minutes are allowed for their meals, during which time they put on their extra clothing, go a few hundred yards to their boarding-houses, eat, and return to their work. During the six months intervening July 24th, 1848, and January 24th, 1849, among the 1438 female operatives, 68 were known to be sick so as to require medical attendance, 4 of whom, or 1 in 17 died. During the same period about 490 deaths occurred in the whole city. The attacks of sickness were, in July, 5; in August, 23; in September, 11; in October, 12; in November, 3; in December, 9; and in January, 4. The deaths were in August, 2; in September, 2.

The above data, as far as they go, very fairly indicate the hygienic state of cotton factories in Lowell, and present points worthy of notice. In the first place, we perceive the instability of our operative population. While there are a very few who have remained some twelve or fifteen years or more, the average length of time of remaining on the Merrimack corporation for the last nine years, has been only nine months.* It is believed, that the entire population of other corporations changes a little oftener than this. Some go from one corporation to another in the city, to do the same or some other kind of work; some to other manufacturing places; some, either temporarily or permanently, return to their country homes; and some—are married. The causes are still more varied than the nature of these changes. We are not able to say how many leave on account of ill health, nor how many of these become ill while connected with the mills, nor how many of these can trace the cause of declining health to influences concomitant with their employment.† The very fact of their having exchanged the salubrious breezes which sweep the hills and valleys of country districts for a city

> "Sated with exhalations rank and fell,
> Which rouse the heart to every fever's rage,"

has some influence, and should be taken into the account, as well as the various places of evening amusements and candy-shops, which tempt the unwary. The accidentals should not be confounded with

* Due allowance should be made for those who make a temporary visit of but a few weeks among their friends, and then return.

† In May, 1845, the following questions among others, were put to 1424 girls while at work, in eight different mills on as many different corporations: "Do you enjoy better health than before working in the mill? Do you enjoy as good health? Do you not

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the essentials of factory life. Generally speaking, their labour is light, but constant. Their hours of labour, and rest, and meals are regular, and this is highly conducive to health. *Nature loves regularity as it abhors a vacuum.*

It has been said, that "the rooms in which they work are kept of a uniform temperature, and are lofty and well ventilated."* It will be seen in Table XVI. page 512, that on the Merrimack Corporation (and this is supposed to be a fair specimen) there has been an average of about 1600 males and females. We will make a liberal deduction, and assume 1350 only, as actually in the mills, and 250 employed in other places about the works. This gives 270 for each mill, and 55 for each room, containing only 64,670 cubic feet, inclusive of the space occupied by machinery. Some rooms have more operatives in them than others, and there are more at some seasons than at others, but we have taken the average. Here, then, we find a certain number for a definite time in a limited space, without any ventilation whatever, except that of an accidental nature, at the doors of entrance in winter, and the same with open windows in summer, and this, too, with the thermometer ranging from 65° to 85° through the winter months! This certainly demands attention, and calls loudly for reform. From the character and variety of the ailments that solicit relief at the hands of our profession in Lowell, we look upon this topic as the most prolific source of deteriorated health in the adjuncts of factory labor among us, and in our neighboring manufacturing towns. Happily, this is an evil which admits of a remedy, and, though hitherto almost, or quite totally neglected, we cannot but look, with high confidence,

enjoy so good health?" Just four years before, in 1841, similar queries were made of 2611 girls. The results were as follows:—

1841.			1845.	
	No.	Per cent.	No.	Per cent.
Health better	170	6.51	154	10.82
Health as good	1563	59.87	827	58.08
Health not so good . . .	878	33.62	443	31.10
Whole number interrogated	2611	100.00	1424	100.00

See "Lowell as it Was, and as it Is," pp. 164, *et seq.* By Rev. H. A. Miles, 1845; and "Vindication of the Character and Condition of the Females employed in the Lowell Mills," p. 11. By Elisha Bartlett, M. D., 1841.

* "The Factory System in its Hygienic Relations," by J. O. Green, M. D., M. M., S. S.

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for a great change in this particular, when it becomes a little better understood. "In the cotton mills, ventilation is very sparingly introduced, whereas, it ought to be most abundant in a place kept at an elevated temperature. The additional quantity of fuel this degree of ventilation (in the cold season) would require, cannot be withheld by any person endowed with either honesty or humanity. Pure and wholesome air is as necessary to the well-being of man, as pure and wholesome food; and he that would knowingly compel his work-people to live in an impure atmosphere, is equally as criminal as the adulterator of bread."* An able writer† in our neighbourhood recently said: "A few men of giant energies, of boundless faith, of far-seeing calculation, sit down in the counting-rooms of this city [Boston] with a surveyor's sketch and a few engineer's levels. They decide that a town shall be built—a manufacturing city erected. Straightway, and almost like the falling, opening, raising, changing scenes of the theatre, huge brick palaces arise, streets in long perspective of shops, schools, houses, sidewalks, begin to stretch themselves out from a thousand nuclei, to meet the new-formed elements in exact symmetry, like the points of ossification in the growing embryo. Churches point their spires to the skies, in all the beauty of Gothic tracery, or plant their firm columns of stone in all the solidity of Grecian art. In short, what the conquerors of the world have been lives and centuries in designing and accomplishing, is called into existence by our merchant princes, almost with the wave of Prospero's wand!"

Would that the same prophetic and far-seeing vision, which pierces so clearly into the distant future as to warrant these unbounded outlays; which boldly cuts down hills and fills up valleys to accommodate the hundred thousand inhabitants, presenting themselves in the misty future, while the grass is still green in the projected avenues—would that it could, at the same time, foresee and prevent, the disease, the death, the misery; the moral, social, as well as political ills, which appear, upon the best of evidence, to go hand in hand with plain sanitary precautions—and realize the illustrations unnumbered from experience past, which tell, with demonstrative certainty, that moral and social degradation are indissolubly linked with disobedience of nature's laws.

* Principles of Warming and Ventilating Public Buildings, Manufactories, &c., by T. Tredgold, London, 1836; Art. Cotton Mills, pages 173, 4.

† L. V. Bell, M. D., L. L. D.

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I blame not these founders of cities, that they have paid but little regard to hygienic and sanitary measures. It is glory enough to build cities—it is too much to expect the same minds which can grasp all the elements essential to these great undertakings, in a commercial point of view, should comprehend all the mysteries of typhus, struma, or contagion, and the relation of these to ventilation, sewerage, and water supply. It is for our profession to step in at this point, and to guard the rights of generations yet unborn, in these respects; and the wise interest, the sagacious foresight, the honourable ambition for unmixed success, will guarantee the co-operation of the builders of cities, whenever they are convinced of the reality of the evils, and that they are susceptible of prevention and relief.

The "ghastly bills of mortality," as they have been termed by an English statistician (under some overlooked or mistaken modifying circumstances, perhaps), "of one of our new cities [Lowell], the prevailing impression of the unhealthfulness already of our lately populated manufacturing towns, call aloud to the medical profession to look at the growing evils of hygienic neglect, full in the face, and if they require a plenary and decided remedy, however costly, it will not be long in being found."

"The very fact," says the same eloquent writer, "that a half of the machinery of the human body, measured either by its capacity or its complexity, is devoted to the function of ventilating the blood, by processes essentially mechanical and chemical, demonstrates the rôle which the air plays in the support of life, and can hardly be over estimated." The amount of air received at each inspiration, has been variously estimated,* and differs in different individuals at different seasons, times of the day, &c. We respire at least a thousand times each hour, and deoxygenize a volume of air equal to five times the amount of oxygen required in the animal economy. This is but a single source of atmospheric vitiation. Besides the polluting

* The number of cubic inches of air taken into an ordinary pair of lungs at each inspiration, has been estimated by different experimenters as follows: Abildgaard, 3; Murzer and Lametherie, 8 to 10; Keutsch, 6 to 12; Abernethy, 12; Goodwin, 3 to 14; Lavoisier and Seguin, 13; Hutchinson, 7 to 17; Sir H. Davy, 13 to 17; Allen and Pepys, 16.5; Kite, 17; Herbert, 16 to 25; Jurin, 20; Herdolt, 25 to 29; Barelle, 15 to 40; Dalton, 30; Fontana, 35; Richerand, Folland, Gordon, and Cavallo, 30 to 40; Hales, Suavages, Haller, Ellis, Soëmmering, Thompson, Sperengel, Bostock, Bell, Monro, Blumenbach, 40; Menzies, 42 to 46; Reil, 42 to 100.

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exhalations from our entire superficies,* we generate by the lungs a poisonous compound equal to the loss of oxygen.

The volume of pure air to be supplied to each person has also been estimated.† This, too, varies in different circumstances. If we assume ten cubic feet each minute to each person, as the proper standard, and this is the minimum of the more recent investigations, we find the fifty-five operatives in a room requiring 550 cubic feet per minute, 33,000 per hour, and not less than 450,000 during each day's period of labour; whereas we have shown that they have but about 60,000, making some abatement for space occupied by machinery! In winter, moreover, for four months, when the windows are closed and generally double, each room has fifty solar lamps burning morning and evening, which assist not only in impuring the confined air, but also in raising the temperature frequently to 90° F. before closing work at night. In all kinds of weather, the operatives, with a hastily adjusted dress, emerge from this atmosphere to their boarding places, partake of a plain but substantial dinner, and return to resume their labour in the space of forty-five minutes.

The air in these rooms, which ought to undergo an entire change hourly, remains day after day, and even month after month, with only the precarious change which open doors occasionally give! There being no ventilation at night, the imprisoned condition of many of the rooms in the morning is stifling and almost intolerable to unaccustomed lungs. After the day's work is ended, two hours' release is enjoyed, a part of which is frequently spent in a crowded lecture-room, and then they retire to dormitories scarcely better ventilated than the mills. From four to six and sometimes even eight are confined during the night in a single room of moderate dimensions. It is but just to say, that this remark will apply with more force to other corporations throughout the city, than to the Merrimack at the present time. The condition of these sleeping apartments probably would not be endured so passively, did not their occupants first become habituated to unwholesome air in the

* Estimated at an average of 32 ounces every 24 hours.

† Dr. Arnott considers 2 or 3 cubic feet per minute, as all that need be furnished each person; Mr. Tredgold fixes his average at 4 cubic feet per minute; Mr. Hood, 3.5 to 5; Mr. Toynbee, F. R. S., 10. Dr. Reid, ventilator of the new House of Parliament, says that 10 cubic feet to each person proved to be a minimum which was generally recognized as below the natural wants of the system, and declares his determination to introduce not less than from 20 to 60 cubic feet per minute. In the late French Chamber of Peers, 12 cubic feet were furnished; at the Pentonville Model Prison, there are arrangements for supplying from 30 to 45 cubic feet. Dr. L. V. Bell considers from 10 to 20 cubic feet as not, perhaps, an unsafe estimate.

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mills. In the latter, efficient ventilation might be economically furnished by appropriating a modicum of power to that purpose.

It has been supposed that the motion of the machinery, in some degree, affords a substitute for ventilation; but it only agitates the confined air, and thus assists in the chemical admixture of the noxious gases and the mechanical suspension of the dust particles and flue, thus proving a positive injury, so far as it is to be taken into the account. Who can calculate the amount of injury which such a fluid, thus frieghted, has upon the estimated 20,000 square inches of membranous surface investing the delicately constructed air-passages, and the 1,744,000,000 of infinitesimal air-cells, in an ordinary pair of lungs, and through the medium of the blood, upon the general system? Is this alone not enough to cause those debilities which give insipid pallor to countenances to which we naturally look for something interesting? Is it not enough to develope some of the protean forms of scrofula or other insidious diseases in the predisposed, and to deteriorate general health and produce menstrual and other derangements?* The machinery in humanly organized beings can no more move with vigor and health, with a scanty supply of pure air, than the less complex machinery of the mills can move, with strength and efficiency, with a deficiency of water. The laws of nature are as precise and imperative in the one case as in the other. The blood has just the admixture of the proper components requisite, and the atmosphere has the definite proportions of the specific elements; both are in contact with the proper intervening septum to accomplish the necessary object in the best possible manner. Any variation must be a defect—a permanent deviation must be an irreparable injury.

That we may not too far transcend our limits, we must omit many other important considerations incident to cotton manufactories, besides bleaching, dyeing, calico printing, &c.† The summation of

* Vitiated air is also the proper *pabulum* for zymotics, whether in the stenchdoms of the filthy, the emigrant ship, or the cotton mill. Its effects "are strikingly illustrated in an account given by Dr. N. Fanning, of Gilboa, N. Y., of a fever that made its appearance in that village during the last winter. Of 123 operatives employed in a cotton mill, it appears that, in the course of two months, nearly one-fourth were seized with typhoid fever. And, from the history of the disease, which is given with remarkable precision and clearness, there can be very little doubt that its origin may be justly traced to a gross neglect with regard to ventilation."

† M. Villermé, of France, has made many interesting investigations on some of these points.

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our investigations (united with some personal observations for a number of years in Lowell), respecting the hygiene of our manufacturing population, as affected by the essentials of their employment, is embodied in the following conclusions.

1. The peculiarity of Lowell, as embracing the leading manufacturing community in America, renders the investigations of health and longevity among us, worthy the most impartial and anxious scrutiny.

2. The fluctuating character of our operative population renders it exceedingly difficult to arrive at accuracy in points of public health among them.

3. The limited investigations hitherto adopted can furnish no correct idea of their comparative health, nor of the comparative health of Lowell.

4. Though many points demand attention, yet, to imperfect ventilation, or rather to an absence of ventilation, more than to any other one cause, can we trace the origin of impaired health.

5. The operatives are more comfortable and healthy than several other classes of our citizens; and as healthy, perhaps, as the aggregate of all other classes.

6. Much might be done at a trifling cost, compared with the value of results, to elevate their physical condition; and it is earnestly hoped that some hygienic changes will be adopted.

In turning our attention to Lowell at large, we find much more than we can ever allude to, which deserves serious attention. The city is supplied with water from wells, though a project for bringing water for domestic purposes, from the Merrimack river, has been proposed. Sewerage and drainage are in a very imperfect condition in many parts of the city, and many lanes and alleys are without either; the house-slops and other refuse remaining on the surface, especially in wet weather. Filth accumulates in various places, and tells the hygienist where zymotic diseases prevail. Typhus and dysentery especially, which we have seen to be so fatal of late, spring up around these *fomites*. Various memorials and petitions have gone to our city government from the physicians as a body, through the Middlesex District Medical Society. They probably were read, but nothing was ever known of their subsequent history. Means have recently been used for very imperfectly ventilating our school-houses, and some other public buildings, on the plan adopted in Boston.

The rapid influx, especially of foreign population, has placed

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small tenements and cellars in high demand, and crowded them infinitely beyond a healthful condition. At this date (April, 1849), in a central district, bounded by Shattuck, Market, Central, and Merrimack streets (the two latter being our principal streets), we find the City Hall, and the offices of mayor, city clerk, treasurer, and engineer, and twelve physicians; the post-office, city library, two churches, three banks, one grammar and three primary schools (embracing an aggregate of eight hundred and thirteen pupils, during the last year), ninety stores (many of our first class), two smithies, several machine shops, a foundry, coal and wood yard, three livery stables, and two hundred and fifty-four tenements, inhabited by one thousand four hundred and forty-five individuals. This district, by the survey of the city engineer, embraces only one-fifteen thousandth of a square mile! Statements like this engender their own comments. From an article in the *Lowell Courier*, of September, 1847, over the signature of J. C., we extract the following: "Few cities are so crowded as Lowell. Various obvious reasons have promoted an influx of labouring population, filling every habitable tenement to an unhealthfully dense degree. We need a health officer, whose only duty should be to see that the laws of public health were complied with. He should visit cellars and hovels, now crammed with filth, and degradation, and disease, which are so numerous in our city. The faithful report of such an officer would astonish the public, for very few are aware of the hundreds of places now inhabited by a horde in a horrid condition. One week ago, I entered a house in a central location, and found it occupied by one store, and twenty-five different families, embracing one hundred and twenty persons, more than half of whom were adults! In one of the rooms, which was inhabited by two families, I found one of the families to consist of a man, his wife, and eight children (four of whom were over fifteen years of age), and four adult boarders! It is criminal to permit such an ill-conditioned ulcer so near the heart of our city, without proper remedial applications. This, by no means, furnishes the worst case of pest germs in Lowell. Indeed, so numerous are the places equally crowded, that one would suppose that the following, which we quote from the *London News*, for June 1, 1847, was describing Lowell instead of London. 'And to crown the sum of misery, Irish paupers are trooping and gathering, in their rags and wretchedness, precisely to those spots where rags and wretchedness, with their concomitant curses of filth and fever, are already huddled together so close that

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every fresh arrival steals the air necessary to save other life. These Irish hordes bring with them not only personal nastiness, with filthy and improvident habits, but the seeds of typhus and dysentery.' If we examine the habitations of large numbers in our city, we shall find a woful lack of the necessaries to health, and impure air impregnated with animal effluvia and stenchful exhalations instead. Some three months ago, I had occasion to enter a room, occupied by a sick person by day, and the same, with the addition of a well person, by night. It contained only three hundred and forty-two cubic feet of air! About the same time, it became necessary to visit another room, in the night, which contained only five hundred and thirty-seven cubic feet, and no means for ventilation. For many hours, night after night, it contained no less than six individuals, three of whom were adults.* Although they were induced to leave this hole, and occupy a more airy situation, yet every one of them soon had the 'ship fever,' and from them it was evidently communicated to others. Both of these cases are within ten rods of the post office, though in opposite directions, and are fair specimens of numerous others in our city. Ought not the occupancy of such places to be forbidden? It seems as much a duty to use means for *preventing* evils, as it is to devise appliances for remedying them." Only one of the above cases, and that the most favourable one, was in the "central district," previously alluded to.

The following letter is from the Rev. Mr. Wood, "minister at large," in Lowell, whose holy duties and humane disposition call him to a surfeiting knowledge of what he says.

"Dear Sir: In answer to the questions you have addressed me, please accept the following imperfect statements. I find a gross violation of the laws of health and life among the poor. This might be expected of those ignorant of these laws, and trained to little reflection. The nature and quantity of food most conducive to strength and freedom from disease, are not understood. There is much imprudent exposure to the weather, bringing on colds and sickness, entirely unnecessary, if a little knowledge and thought were brought to bear. Labour is often excessive and ill-timed, breaking down noble constitutions; intemperance is the ruin of many.

* The head of this recently emigrated family was quite intelligent, having taught one of the parish schools in Ireland for the last fourteen years.

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"There is one infraction of the laws of life and health among the poor, which, I think, should be brought more prominently before the public. This is in connection with their habitations. Their rooms are generally not ventilated at all. From six to ten persons frequently sleep in a single room, and sometimes in one bed. This is particularly the case among our foreign population. The air is stagnant, soon becomes poisonous, and exceedingly offensive. Often every room in the house has from four to twelve inmates, in a narrow lane, perhaps, crowded close with tenements; the little uncovered ground the receptacle of dirty water, rubbish, and corrupt vegetable matter; and numerous outhouses of necessity near to the windows, sometimes filling every room, and the whole neighbourhood with noxious exhalations. Cellars are occupied in very damp locations, where water frequently stands in drops on the walls, and in wet times can be wrung from the sheets of the bed. Two-thirds of the inhabitants of the city, probably, would not deposit their vegetables where not a few families reside, and pay from $150 to $2 per month for rent. There are many cellars under ground, with only one or two half windows, and a few panes of glass, where the poor are urged to locate themselves, at a little cheaper rate—urged to gratify avarice, though they take to themselves fevers, rheumatisms, and consumption. I know of one case, where, in two connected rooms in a cellar—and lighted by only three small panes of green glass covered with cobwebs, and where, on entering, I stumbled over the beds, because I could not see them—four families, amounting to twenty-two souls, were living!

"Looking at this subject in only one light, can we suppose that God meant that his creatures should breathe over and over again this noxious and confined air, when abroad, all over the earth, He is continually stirring and filtrating it by wind and rain, that it may be breathed in purity? Sometimes it is almost impossible, after breathing the out-door air, to inhale the air of these rooms. It is well known that this bad air infuses itself into all the clothes hung up and worn in these rooms, and this, connected with the exhalations of a body whose cleanliness is of course almost entirely neglected, attaches to one an effluvia which it must be very unhealthy for the bearer to breathe,* and which clings to him, though he walk against a strong north-wester a whole day; for let him, at the close

* "Of all known poisons, that produced by the concentrated effluvia from a crowd of human beings confined within a small space, and neglectful of cleanliness, is one of the worst." Dr. A. Combe's letter to the London Times, Sept. 17, 1847.

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of it, enter your room, and he will perceptibly poison the air you are breathing. Shall such a fact be alone an offence to us? Have we no humanity to pity, enlighten, and remove? and more, when we consider the effects of the air breathed! To this, more than to the want of food, I think, may be attributed pale faces, sallow complexions, torpor, and various sicknesses among the poor. May not the sickly appearance of infants in the abodes of poverty, and their early mortality, be often traced to this as a cause? Do we doubt that many pains and distempers and deaths among adults also arise from this? Are not ill health and death, too, among the causes of pauperism, and pauperism more and more dependent and degraded? And it has well been asked, is it not true that many of those morbid appetites and unnatural desires that seek to assuage their longings by indulgence and excess, have their origin in the action of a distempered body upon the mind, rather than of the mind upon the body?*

"This subject assumes a high importance in an intelligent community, and an ascending one with the advance of intelligence. The intelligent philanthropist cannot rest easy. God will not allow him to rest, while no more attention is paid to it.

"I believe that it is the duty of the government of this city to feel a care of this matter, and to exert its authority more than it does. Why should not our city authorities do something to prevent tenements, or cellars of tenements, from being occupied, when there is positive proof that they are, and must be, destructive of health and life? Why should not our government prevent, by law, houses from being jammed together in such unhealthy contiguity as they frequently are, by the cupidity of selfishness? Why, it has been suggested, should government care so much for unusual immortality, and unusual sickness, and so little for the usual, in the aggregate affecting so much more, the prosperity, comfort, and highest interest of the body politic? Something more effectual still may be done by the instruction, in all our schools, of the plain and essential laws of health and life. With our schools, and the young generally, are the power and hope of reformation. The knowledge of these

* Mr. Wood here alludes to an important point. In corroboration, we cite from Dr. Southwood Smith's testimony before the Parliamentary Commission: "The poison generated in these neglected districts, and to which these persons are habitually exposed, is a sedative poison, among the most distinctive characters of which are depressing effects produced by it both on mind and body. This is one of the main causes, not only of the mental apathy of which I have already spoken, but also of that physical listlessness which makes them incapable of any great exertion. I am satisfied that this feeling of depression is one of the chief inducements to the use of stimulants."

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laws thoroughly instilled in early days, advanced to manhood, the children *would not* live in the manner, with the habits and in the localities, of their parents. In this way, too, would be raised up a host of missionaries of light.

"With great regard, yours, &c.
"H. WOOD."

"To JOSIAH CURTIS, M.D.
"*Lowell, April*, 1849."

The above conveys a general idea of some of the worst places in the city which *demand* attention. We cannot leave this matter, however, without an allusion to another, and, probably, the worst district, known as "*The* ACRE." It is inhabited, I believe, exclusively by foreigners, and contains two Roman Catholic churches, but in other particulars, it beggars all description!*

Had we the necessary means of ascertainment, it would be highly interesting to learn the amount of sickness suffered by the community. It is exceedingly difficult, if not absolutely impossible, to obtain the requisite items of information in society at large. The best approximation to the truth is derived by comparing the deaths to the sick in our hospitals, dispensaries, and other institutions for the benefit of the sick. The *Massachusetts General Hospital* went into operation in 1821, and the following table covers the information derived from a file of their Reports:—

TABLE XVII.†

Periods.	Admitted.	Discharged.	Whole No.	Unfit.	Eloped.	Dead.	Not relieved.	Relieved.	Much relieved.	Well.	Insane.	By request.	Misconduct.	Remained.
1821 to 1825	1077	1031	1077	6	13	87	31	268	96	458	3	56	9	44
1826 to 1830	2483	2482	2528	16	11	142	288	323	477	1206		14		54
1831 to 1835	2396	2394	2450	18	23	192	250	314	403	1179	6	4	2	52
1836 to 1840	2036	2034	2088	21	11	152	240	298	427	874				57
1841 to 1845	2003	2046	2061	42	6	193	231	293	378	796				55
1846 to 1848	1937	1886	1991	12	6	196	136	243	258	951	2	2		111
Total	11,932	11,873	11,932	115	70	962	1176	1739	2039	5464	11	76	11	
	Cases of Typhus Fever, 1846 to 1848, included above.													
1846 to 1848	203		203		1	14	1	3	6	186	2			1

* The foregoing is, of course, intended only in a hygienic sense. We trust no one will construe the text here, or elsewhere, as offensive to any class of citizens. In all moral points, we prefer to cherish the spirit of Him "who came not to condemn the world."

† The above table, though from official documents, exhibits some slight inaccuracies.

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Here, it will be perceived that, of the 11,932 cases treated, 962 died, being one in 12.4, or 8.06 per cent. The different diseases, and the mortality therefrom, are not specified, excepting the cases of fever during the years 1846 to 1848 inclusive, which are appended above. The mortality from this disease was one in 14.5, being 6.9 per cent.

The *McLean Asylum for the Insane*, connected with this establishment, is located two miles from the city, at Somerville. The condition of this department, since it came under the professional superintendence of its present incumbent in 1836, is shown in the subjoined table:—

TABLE XVIII.

Periods.	Admitted.	Discharged.	Whole No.	Dead.	Improved Not do. and unfit.	Well.	Remain.
1837 to 1840	545	491	616	43	158	290	125
1841 to 1845	690	665	815	76	225	360	151
1846 to 1848	461	451	612	65	152	234	155
Total	1696	1607		184	535	884	155

For the sake of completeness and comparison, respecting this unfortunate class of our citizens, we here annex some statistics of the *State Lunatic Hospital* located at Worcester. They are abstracted from the annual reports of that institution to the legislature.

TABLE XIX.

Periods.	Admitted.	Recovered.	Improved.	Not improved.	Died.	Eloped.
1833 to 1835	385	141	52	50	20	3
1836 to 1840	811	365	120	136	70	1
1841 to 1845	1110	532	158	210	85	
1846 to 1848	778	393	86	152	98	2
Total	3084	1431	416	548	273	6

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TABLE XX.

Showing some of the Causes of Insanity as affecting persons pursuing different avocations.

Vocations.	Intemperance.	Ill health.	Masturbation.	Domestic affliction.	Religion.	Property.	Disappointed affection.	Epilepsy.	Jealousy.	Total.
Farmers . .	65	18	29	27	27	29	4	9	3	211
Labourers . .	88	10	15	8	10	9	1	6	2	149
Seamen . .	34	5	7	3	7	6	1		3	66
Merchants . .	14	5	32	5	4	20	1	3		84
Carpenters . .	17	7	9	2	10	6	3	2		56
Shoemakers .	9	7	27	5	10	6	2	1		67
Blacksmiths .	4	1	1	1	2	4	3			16
Students . .		3	22	2	2			1		30
Clergymen . .	1	2	4		1	1	1			10
Lawyers . .	2		2	1		1				6
Physicians . .	2					1	1			4
Painters . .	1		11	2	1	1	1	1		18
Manufacturers .	9	3	4	1	4	4	1			26
Totals	246	61	163	57	78	88	19	23	8	743

The *Boston Dispensary* has now been established more than half a century. This charity employs eleven physicians and three apothecaries. The following table, compiled by Mr. Shattuck, shows the character and results of their gratuitous labours for the years 1841 to 1845 inclusive.

TABLE XXI.

Results.	1841.	1842.	1843.	1844.	1845.	Total.
Recovered	1861	1524	2115	1796	1540	8836
Died	88	87	79	87	71	412
Relieved	185	136	199	193	300	1013
Not relieved	20	16	31	19	65	151
Removed	130	115	90	83	166	584
Remained	85	61	98	83	78	405
Not stated	14	18	48	56	62	198
Total No. of cases	2383	1957	2660	2317	2282	11,599
Places of birth.						
Boston	272	86	119	96	100	673
American	613	302	486	428	388	2217
Hibernico-American	611	514	629	752	671	3177
Ireland	771	823	1269	926	911	4700
British	86	47	77	78	129	417
Others	30	49	78	37	82	276
Habits.						
Temperate	1879	1827	2124	1979	1604	9431
Intemperate	313	127	164	74	96	774
Children of intemperate parents	70	3		25	61	159

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We have not the reports of the "City Hospital for the Poor," at S. Boston; "The Deer Island Pauper Hospital;" "The Home for the Destitute," &c.

The *Lowell Hospital* commenced operations in May, 1840. It has never made any report, save in a few newspaper paragraphs. We learn the facts embraced in the following table from a paper recently read by its physician, before the Middlesex Dist. Med. Society, and from the Secretary of the Board of Trustees.*

* It is proper here to remark, that this is a private institution, intended to benefit those engaged in the mills. But a small proportion, however, of our sick operatives find their way to the hospital. Some are too ill to be removed from their boarding-houses to the hospital before it is known to the officers of that institution; others improperly attach a certain degree of odium to the idea of being sick in a "hospital;" and others, again, very properly prefer to select their own medical attendant, when sick. The corporations own the boarding-houses, and let them to various individuals, subject to certain regulations, and require, with few exceptions, their operatives to board in them. Within the last twelve months, the agents of the several manufacturing companies, who constitute the Board of Trustees to the Hospital, issued a circular to each boarding-house, for the purpose of inducing and urging, to use no stronger term, the sick among their employed to resort to the hospital. This circular terminates with the following sentence: "It is requested that all boarding-house keepers will use all proper means to induce the sick among their boarders to avail themselves of its privileges; and notice is hereby given, that a neglect or refusal, on the part of the occupant of any boarding-house, to carry out this request, will be considered sufficient cause for terminating the occupancy of said house."

It is not to be supposed from this, however, that the hospital will hereafter furnish an index of the sickness among the operatives.

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TABLE XXII.

Exhibiting Statistics of the Lowell Hospital since its Organization in May, 1840.

	Cases of Typhoid Fever.												Total of typhoid fever.	Deaths of do.	Total of all diseases.	Deaths of do.	Recovered.	Relieved.	Not relieved.	Average days for each patient.	Average population for year.	Of typhoid fever, there died one in	Of all, there died one in
	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.											
1840–1			2	5	8	10	2	7	5	6	2	2	49	3	130	4	111	7	6	16.10	5.64	16.33	43.33
1841–2	3	4	9	20	25	14	10	5	1	6	3	2	102	5	255	7	223	12	1	11.54	8.12	20.40	51.
1842–3	12	3	5	16	7	8	4	3		7	7	2	74	5	130	6	127	6	1	13.90	5.48	14.80	26.
1843–4	7	4	4	5	5	10	7	5	5	1	7	3	63	3	147	6	124	15	2	12.	4.75	21.	49.
1844–5	3	5	2	4	17	16	16	4	4	7	4	5	87	1	148	2	120	17	3	11.67	4.60	87.	148.
1845–6	5	8	10	21	12	21	5	12	8	7	9	6	124	6	208	9	184	12	4	14.50	8.30	20.66	34.67
1846–7	7	6	15	15	17	20.	15	13	15	9	8	3	143	6	224	10	205	9	1			23.83	37.33
1847–8	10	6	12	18	11	17	10	10	4	3	4	3	108	10	172	20	152	3		16.	7.67	10.80	17.20
1848–9	7	1	3	17	27	10	4	2	3	2	1		77	2	213	12	198	2				38.50	96.
Totals	54	37	62	121	129	126	73	61	45	48	45	26	827	41	1627	76	1444	83	18			20.16	21.40

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The foregoing table exhibits the remarkable fact, that, of the 1,627 patients, 827 had the typhoid fever. Of these cases, there was one death in 20.16, or 4.96 per cent.; of other cases, there was one death in 22.86, or 4.37 per cent.; of the whole, one in 21.4, or 4.67 per cent. These favourable results are, in part, accounted for in the following manner: we quote from the MS. paper of the physician before alluded to. "It is to the advantage of the Lowell Hospital, no doubt, that its patients are taken from a class of individuals better able to withstand disease than those who ordinarily find their way into a similar city institution. The operative population of Lowell are young, robust, and generally free of constitutional infirmities. Indeed, it is just such a class as we should suppose would pass through sickness in the shortest time, and with the least danger. Such circumstances, I say, are *obviously* in favour of our Lowell population."*

The *Lowell Dispensary* received its charter from our legislature in 1836. It appoints three physicians, who render gratuitous services. No reports have ever been made.

The intention and character of our hospitals are such as to preclude the general applications of their results to the whole community, as indicative of the ratio which the sick bear to the deaths. The Boston Dispensary, which is an entirely eleemosynary institution, furnishes the fairest comparison. It was shown in Table XXI., page 526, that there was a little over 28 cases of sickness to one death, (11,599+412=28.15.) During the four preceding years, the results were nearly the same, (10,730+379=28.31.) This coincides with results found by some eminent English statists, who have given this point greater attention. Dr. Lyon Playfair, in his very able

* The following extract is also worthy of record. "From the statements here furnished, it appears quite obvious that typhoid fever is not only a very constant, but also the most important, disease among our operative population. It gives no evidence of the proportion it bears to the same disease, as it occurs with the rest of our adult population. Nevertheless, I think it must have been impressed upon the conviction of every physician of several years' standing in our city, that our operatives, as a class, have suffered from it to a much greater degree than the citizens at large. If such is the fact, it becomes a matter of interest to inquire why it is so; and then, again, to ascertain if it is an evil which admits of a remedy, and if so, what it is. * * * * My own opinion, however, is, that *imperfect ventilation*, in our cotton-mills, particularly, may have a very important bearing upon the question of causes of fever among our operative population. * * * * Air thus confined for the space of several months, in rooms occupied by some fifty persons, for twelve hours every day, except Sundays, must, sooner or later, make an impression upon the constitution, and thus indirectly, at least, become the means of inducing disease."

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report to the Health of Towns Commission, on the sanitary condition of large towns in Lancashire, (which embraces Liverpool, Manchester, &c.,) states that, "out of 324,041 cases (excluding slight accidents), admitted into the Manchester medical institutions during twelve years, there have been 11,587 deaths, that is, about twenty-eight cases of sickness to one death." But some writers have supposed this too high for a general estimate.* If we assume that there are only twenty attacks of sickness to one death in a community, it would give 89,000 cases of sickness, of longer or shorter duration, in Lowell, since 1840; of which 49,000 occurred during the last three years, being an annual average of over 16,000! In the city of Boston, on this hypothesis, there have been no less than 457,000 cases of sickness since 1840; of which, 229,700, or 76,566 annually, occurred since 1846.

If we advance another step, and start the inquiry, how much of this sickness might have been prevented, and how much of this death might have been postponed, we enter upon the most impressive characteristic in the province of our report. We see degradation, disease, and death inflicted upon the disobedient public as the direct penalty of violated law. Physical laws are as sacred and obligatory as the Decalogue. Indeed, so imperative are they, that they have been inwrought into the very texture of our frames. The Divine Architect has inscribed upon every one of the scores of bones, every one of the hundreds of muscles, the thousands of blood-vessels, the millions of nerves, with their myriads of filaments, just what each can perform. The chemist, in his laboratory, with the control of elementary atoms, discovers affinitives and repulsives with no nicer delicacy than obtains in the pulmonic alembic, where the blood recognizes a distinction between zotics and azotics; or the gastric crucible, where the crude viands of the table are fitted for conversion into living tissue—the mysterious mutation from death unto life! Nothing is more certain than that we hold the capacities of happiness,† health, and life itself, on certain conditions, and forfeit them, without the right of redemption, by non-compliance. Every infraction is sinning on credit where there is no atonement.

The diseases which are the most fatal among us, are those that are the most easily prevented by hygienic prophylactics; yet they

* Med.-Chirurg. Review, vol. i, No. 1, p. 21.

† "A sound mind in a sound body constitutes a short but full description of a happy state in this world."—*Locke.*

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are increasing, and so subtracting from the valuation of human life in our midst, that, in our State, our cities, and villages, longevity is taking the inverse ratio of their increasing density in population.* In this particular, we are falling in the rear of other nations.† The dwellings of the masses, and the factories of the few, seem less cared for than our prisons.‡ Municipal authorities dictate the mode of building for the protection of property, but not for the protection of life. Typhus, dysentery, and struma visit the offending,

* Dr. E. Jarvis, an eminent hygienist, has demonstrated this. We quote from him, with some additions: (*Petition of the American Statistical Association to the Legislature of Massachusetts for a Sanitary Survey of the State.—House Doc. No.* 16, 1848, *and* 66, 1849.)

"The average of all whose deaths are recorded, was in

Massachusetts.		Dorchester.	
1842,	34 years 9 months.	1817 to 1829,	33 " 11 months.
1843,	33 " 10 "	1830 to 1843,	31 years 2 "
1844,	33 " 9 "		
1845,	30 " 9 "	**Boston.**	
		1811 to 1820,	27 " 3 "
Concord.		1821 to 1830,	25 " 11 "
1779 to 1808,	39 " 7 "	1831 to 1840,	22 " 9 "
1809 to 1842,	36 " 0 "	1841 to 1845,	21 " 5 "
		Lowell.	
1836 to 1840,	17 " 1½ "	1841 to 1845,	17 " 0 "

† We give but a single instance from many that might be adduced.

"Geneva (Switzerland) has arrived at a high state of civilization, and this wonderful improvement is attributed, among other things by M. Mallet, to the information obtained under their system of registration, rendering the science of public health better known and understood." This city has kept a faithful registration for *three centuries.* Longevity appears as follows:—

Period.	Years.	Months.	Days.	Rate of increase.
1550 to 1600	8	7	26	100
1600 " 1700	13	3	16	153
1701 " 1750	27	9	13	321
1751 " 1800	31	3	5	361
1801 " 1813	40	8	10	470
1814 " 1833	45	0	29	521

"Showing that the mean duration of life has increased more than five times during these periods." (*Ibid.*)

‡ Says Finlayson, of the National Debt Office, Eng., "A Benefit Society, (as life or health insurance,) founding its calculations on the scale of prison mortality, would fail in three years." There is not a State's Prison, or House of Correction, in New England, where the hours of labour are so long, the hours for meals so short, or the ventilation so much neglected, as in all the cotton-mills with which I am acquainted. See also page 517, *note.*

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especially in dense, urban localities.* Harpy-like, they prey upon personal filth. They make their deadly visitations not only among the 40,000 who dwell in cellars in Liverpool, the 18,000 who live below the level of the ground in Manchester, and the similar class in Glasgow, Leeds, and London; but also the occupiers of dark† nurseries of pestilence in Boston and Lowell, and other places. The germs of malignant disease, incubated in these nests, extend their infectious toils to those who visit to counsel and succour, as well as spread over juxtaposite localities. Among the former, the ministers of Gospel consolation, and the administerers of medical relief, suffer most.‡ Between the last two annual meetings of the medical society of this State, seven of its members died in this city, (Boston.) Four of these died of fever, contracted while on professional duty. The best of testimony informs us that near 4,000 deaths, and over 75,000 cases of sickness, might have been avoided in Boston within the last three years! and that over 800 deaths, and 16,000 attacks of sickness might have been prevented in Lowell, within the same time! When we take into account the mental and physical strength lost to the community, in time and labour, the cost of sickness, expense of funerals, &c., no arithmetic can calculate the detriment sustained *unnecessarily* by *preventable* disease and death, even in a pecuniary view. Had such a tax upon the public resources, and such a waste of human life been sacrificed in war, it would have received greater attention.§

* The Registrar-General (an officer unknown on the Continent of America), divides London into three groups, each having ten districts. The first contains 202 square yards to each person, and the mortality is one in 49; the second affords 102 square yards to each person, and the mortality is one in 41; the third allows 32 square yards to each individual, and the deaths are one in 36. Rev. Mr. Clay, of Preston, makes four classes of streets in that place, and the well-conditioned have a mortality, among children under one year old, of 15 in 100; the moderately-conditioned, 21 in 100; the ill-conditioned, 38 in 100; the worst-conditioned, 44 in 100; or nearly three times as great as the first! Instances of the kind might be given *ad libitum*.

† "Where the sun does not come, the physician must."—*Neapolitan Proverb.*

‡ Says the editor of the *London Journal of Health*, "Some idea of this calamity may be obtained, from the fact that, out of twenty-five medical officers engaged in the relief of the parish poor of Liverpool, twenty have had the fever." "Within the last few months," he continues, "no fewer than twenty-three (Catholic) priests have perished by fever; of these, ten died in Liverpool, and five in Leeds." "In Canada, twenty Catholic priests, including one bishop, have recently died of fever."

§ "The awful results of war are not confined to the bloody scenes of the battle-field; but disease—slow, consuming disease—more than any of the instruments of war, scatters death among those engaged in the trying fatigues and exposures of military duty. Of those who have died in active service in MEXICO, the proportion of those cut down

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In England, where they have paid large attention to these evils by investigations, and the application of remedies,* we find results so ghastly, as to be incredible, were they not susceptible of mathematical demonstration. Says Dr. Southwood Smith, "It is no exaggeration to state that the annual slaughter in England and Wales, from preventable causes of typhus, which attacks persons in the vigour of life, is double the amount that was suffered by the allied armies in the battle of Waterloo!" Lord Morpeth (now Earl of Carlisle), remarked, in the British Parliament, in a speech of April 30th, 1847, that, in the various large towns in England, there were annually "above 700,000 cases of unnecessary sickness," and in the metropolis alone, "there were 250,000 cases of unnecessary sickness, and 10,000 deaths that might have been saved!" "There are items of expense," he observes, such as "direct attendance on the sick; loss of what they would have earned; premature death of productive contributors to the national wealth, and expense of premature funerals." Dr. Playfair estimates this loss for Manchester at nearly £1,000,000, and for the whole of the county of Lancaster at £4,800,995; Mr. Hawkesley calculates the loss for Nottingham at £300,000; Mr. Clay estimates the loss for Ashton-under-Lyne at £235,000; and Dr. Playfair considers the loss of London to be above £2,500,000; and that of England and Wales to be little short of £11,000,000; and of the United Kingdom, £20,000,000, or nearly $100,000,000! And this an annual loss!

Like causes produce like effects. The laws of health and of zymotics, which prevail in Old England, also are operative in New

by disease to those who fell on the battle-field, is about *five* to *one!*"—General Taylor's *Address to the Volunteers returned from Mexico.* While the number of the "killed and wounded" has been carefully preserved, the above has fallen almost lifeless from the lips of the "hero of many battles."

* Within a few months after the Sanitary Act went into force, *Liverpool* closed 7,840 cellars, and condemned 1,616 filthy houses. In *Manchester*, the sanitary officers go round daily, and inspect every lodging-house, and make returns to the chief constable, of the names of the owners and occupiers, the number and size of the rooms, the number of inmates in each room, the condition as to ventilation, furniture, beds, state of the walls, floors, &c., and all nuisances existing near. By the 86th section of the Manchester Police Act, the occupier of every house or dwelling is required to whitewash, purify, and cleanse the same, on receiving notice so to do, under a penalty of 5s. for each day's delay. On their first visit, the inspectors serve notices, where circumstances call for them. Night soil and other filth are forthwith reported to the Nuisance Committee. On their second visit, the inspectors are accompanied by three men, one of whom carries a bucket of whitewash, and the other two, in any house not whitewashed in the interval following the notice, proceed at once to whitewash and cleanse every room.

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England. The experiments of Thenard and Dupuytren proved for both trans-atlantic and cis-atlantic regions, that birds perish when the vapours of sulphuretted hydrogen and ammonia exist in the atmosphere to the extent of a fifteen-thousandth part; that dogs are deprived of life when the air contains a thousandth part; and that man cannot live when the air he breathes is impregnated with a three-hundredth part; and suffers in a corresponding degree, when there is a less proportion of this poisonous gas, produced from the decomposition of feculent matter which we leave in our streets, and suffer to diffuse itself from overflowing privies and urinaries, to pollute the atmosphere inhaled, and waters imbibed.* If the losses from evident neglect in hygienic precautions in our cities could be accurately estimated, the statements would be astounding. To them would be applicable the language of a foreign writer, "Halve or quarter every item, if they appear exaggerated, and there would still remain the most remarkable *exposé* ever yet made of municipal and national extravagance. One broad principle," he adds, "may be enunciated in sanitary economies—that it costs more money to create disease than to prevent it."

This subject, in its moral, domestic, physical, and pecuniary bearings, commends itself to the clergyman, the philanthropist, the physician, and the statesman.

Dr. Guy, of King's College, London, &c., says, "I do not fear the charge of exaggeration, when I claim for the sanitary question, the right to be regarded THE great question of the day. Look at it as a question of humanity, and it will not suffer by comparison with the highest efforts of the philanthropist; regard it as a great act of justice, and here, too, you will acknowledge it prefers peculiar claims to consideration; measure it by the rule of economy, and I hesitate not to affirm that it stands without a rival; or view it in its moral relations and reactions, and I know not whether even the great question of education will take rank before it."

All look to our profession, as the guardians of public health, for the light of information. Be it ours to furnish a full supply. It is the most pleasant, as well as the most important, duty of the members of this Association, to point out and illustrate facts and principles, which, if observed, will *prevent* disease, promote attainable

* The compounds of Ellerman, Ledoyen, Sir Wm. Burnett, and others, have stronger claims to the epithet *deodorants* than *disinfectants;* though the metallic salts, (sulphates of iron and copper, the nitrate of lead, and chloride of manganese, &c.,) of which some of them are composed, possess the latter property.

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longevity, and thus add to the great world-stock of human happiness and human usefulness. To exhibit remedial agents to the sick, like the execution of criminal law upon the offending, is a necessary evil to overcome a greater one still existing. It is the *opprobrium artis* to the physician. In this matter, then, a responsibility, hard to be over-estimated, rests upon the profession. Who has not felt the high responsibility of our vocation, when called upon to render some sacred service—perhaps to enter within the precincts of the penetralia, with a grasp of the hand and a look which seem to say, "I confide to your skill and knowledge my all of earth. Fail not, I beseech you, to summon all your powers; I conjure you to command all your skill to relieve distress, to abridge agony, to augment happiness, and prolong life, and you shall have your reward!" May this be typical of our action on this subject! May the echo, as if from the spirit of Hygeia, fall with lingering reverberations on the heart—"Fail not to do all in your power to diminish distress, augment happiness, and prolong human life; and you shall have a rich reward."

LOWELL, *April* 30*th*, 1849.

TABLE XXIII.

Showing the Mortality from different Diseases in Massachusetts for five years, viz., from 1844 *to* 1848 *inclusive.*

DISEASES.	Number of deaths in					In each 10,000 deaths there were in				
	1844.	1845.	1846.	1847.	1848.	1844.	1845.	1846.	1847.	1848.
I. *Zymotics.*										
Cholera	28	45	40	92	46	40	56	46	89	46
Cholera infantum	87	111	258	224	172	123	138	294	217	173
Croup	122	261	218	277	265	172	323	250	268	267
Diarrhœa	30	24	55	271	245	42	30	63	263	246
Dysentery	120	200	122	410	1074	170	248	140	397	1079
Erysipelas	104	111	84	53	60	147	137	96	51	60
Fever, intermittent		3	5	2	3		4	6	2	3
Fever, remittent	2	6	12	6	9	3	7	14	6	9
Fever, typhus	634	772	614	944	1202	896	957	703	915	1208
Hooping-cough	60	68	100	104	77	85	84	114	101	77
Influenza	68	16	16	28	27	96	20	18	27	27
Measles	32	44	46	136	43	45	54	53	132	43
Scarlatina	328	538	516	418	176	463	667	590	405	177
Small-pox	11	5	32	12	21	16	6	37	12	21
Syphilis		3	1	1	1		4	1	1	1
Thrush	1	1	2	4		1	1	2	4	
Totals	1627	2208	2121	2982	3421	2299	2736	2427	2890	3437
II. *Sporadics.*										
Abscess	9	3	13	10	14	13	4	15	10	14
Atrophy	50	18	13	38	40	71	22	15	37	40
Cancer	94	99	113	118	114	133	123	129	114	114

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DISEASES.	Number of deaths in					In each 10,000 deaths, there were in				
	1844.	1845.	1846.	1847.	1848.	1844.	1845.	1846.	1847.	1848.
Debility	21	15	13	37	29	35	19	15	36	29
Dropsy	163	181	235	277	250	230	224	269	268	252
Gout	2	5	5	3		3	6	6	3	
Hemorrhage	20	28	30	25	40	28	35	34	24	40
Inflammation	35	6	31	27	31	49	7	35	26	31
Malformation	4	4	4	8	5	6	5	5	8	5
Mortification	25	26	24	44	186	35	32	27	43	187
Scrofula	27	42	31	41	27	38	52	35	40	27
Sudden	27		19	27	24	38		22	26	24
Tumour	6	12	12	19	23	9	15	14	18	23
Totals	487	439	543	674	783	688	544	621	653	787
III. *Of the Nervous System.*										
Apoplexy	82	82	69	90	78	116	101	79	87	78
Cephalitis	92	94	38	54		130	116	44	52	
Chorea	3	2	2	2	1	4	3	2	2	1
Convulsions	130	204	146	237	245	184	254	167	230	246
Delirium tremens		13	17	24	21		16	19	23	21
Epilepsy	15	7	13	14	6	22	9	15	13	6
Hydrocephalus	129	189	231	233	197	182	234	264	226	198
Insanity	10	12	9	24	35	14	15	10	23	35
Paralysis	111	117	177	164	138	157	145	203	159	139
Tetanus	3	5	3	9	13	4	6	3	9	13
Diseases of organs	56	69	64	79	118	79	85	74	77	119
Totals	631	794	769	930	852	892	984	880	901	856
IV. *Of the Respiratory System.*										
Asthma	4	9	6	12	9	6	11	7	12	9
Bronchitis	15	12	12	19	22	21	15	14	18	22
Consumption	1634	2072	2104	2397	2387	2309	2567	2407	2324	2399
Hydrothorax	16	49	18	16	15	23	61	20	15	15
Laryngitis	2	5	1	5	3	3	6	1	5	3
Pleuritis	25	20	33	47	37	36	25	38	46	37
Pneumonia	337	350	235	501	432	476	434	269	486	434
Quinsy	3	11	9	14	6	4	14	10	13	6
Diseases of organs		14	29	31	26		17	33	30	26
Totals	2036	2542	2447	5032	2937	2878	3150	2799	2949	2951
V. *Of the Circulatory System.*										
Aneurism	2	3	3	3		3	4	4	3	
Pericarditis		13	1	2	3		16	1	2	3
Diseases of organs	139	120	147	202	225	196	148	167	196	226
Totals	141	136	151	207	228	199	168	172	201	229
VI. *Of the Digestive System.*										
Ascites										
Colic	15	34	12	16	22	21	42	14	15	22
Dentition	24	31	30	61	69	34	38	34	60	69
Dyspepsia	6	12	8	12	8	8	15	9	12	8
Enteritis	116	145	132	118	107	165	179	151	114	108
Gastritis	16	11	4	19	13	22	13	4	18	13
Hepatitis	4					6				
Hernia	19		9	12	7	28		10	12	7
Intussusception	17	5	5	2	1	24	6	6	2	1
Jaundice	7	12	14	24	18	10	15	16	23	18
Peritonitis	16	12	5	7	2	23	15	6	7	2
Ulceration	23					32				

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DISEASES.	Number of deaths in					In each 10,000 deaths, there were in				
	1844.	1845.	1846.	1847.	1848.	1844.	1845.	1846.	1847.	1848.
Worms	4	10	7	14	6	6	12	8	13	6
Diseases of liver	27	51	49	63	57	37	63	56	61	57
" spleen										
" organs	139	194	53	45	39	196	243	61	44	39
Totals	433	517	328	393	349	612	641	375	381	350
VII. *Of the Urinative System.*										
Cystitis	5	5	3	4	3	7	6	3	4	3
Diabetes	7	7	15	16	14	10	9	17	15	14
Gravel	11	9	9	10	15	15	11	10	10	15
Nephritis	9	3		5	1	13	4		5	1
Diseases of organs		8	9	13	24		10	11	13	24
Totals	32	32	36	48	57	45	40	41	47	57
VIII. *Of the Generative System.*										
Childbirth	30	52	45	69	69	42	65	52	67	69
Paramenia	1					1				
Puerperal fever	33	35	30	25	33	47	43	34	24	33
Diseases of organs	4	8	5	13	2	6	10	6	13	2
Totals	68	95	80	107	104	96	118	92	104	104
IX. *Of the Locomotive System.*										
Rheumatism	14	17	13	21	15	20	21	15	20	15
Diseases of hip	1	2	3	8	4	1	3	3	8	4
Diseases of joints		1	2	5	1		1	2	5	1
Diseases of spine	19	14	21	20	30	27	17	25	19	30
Totals	34	34	39	54	50	48	42	45	52	50
X. *Of the Integumentive System.*										
Fistula		1		1			1		1	
Purpura	3	4		4	2	4	5		4	2
Ulcer	8	10	9	11	7	12	12	11	10	7
Diseases of organs	1	2	1	4	1	1	3	1	4	1
Totals	12	17	10	20	10	17	21	12	19	10
XI. *Of Age.*										
Infantile	663	450	1187	708	183	937	558	1358	686	184
Senile	631	504	688	733	633	892	624	787	711	636
Totals	1294	954	1875	1441	816	1829	1182	2145	1397	820
XII. *Of External Causes.*										
Accident	86	87	131	133	142	122	108	150	129	143
Burns and scalds	22	33	36	27	27	31	41	41	26	27
Drowned	88	114	115	178	100	124	141	131	172	101
Executed										
Frozen	1			1		1			1	
Heat				4					4	
Intemperance	40	23	19	30	27	57	29	22	29	27
Lightning				1					1	
Malpractice	1					1				
Murdered	5			2	2	7			2	2
Poisoned	6	10	5	4	7	9	12	6	4	7
Suffocated		6	5	3	4		7	6	3	4
Suicide	32	29	31	36	38	45	36	35	35	38
Totals	281	302	342	419	347	397	374	391	406	349

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RECAPITULATION OF TABLE XXIII.

CLASSES OF DISEASES.	Number of deaths in						In each 10,000 deaths, there were in					
	1844	1845	1846	1847	1848	1844 to 1848	1844	1845	1846	1847	1848	1844 to 1848
I. Zymotics	1637	2208	2121	2962	3421	12,359	2299	2736	2427	2890	3437	2798
Sporadics												
II. Of General Location	487	439	543	674	783	2926	688	544	621	653	787	662
III. Of Nervous System	631	794	769	930	852	3976	892	984	880	901	856	900
IV. Of Respirative System	2036	2542	2447	3042	2937	13,004	2878	3150	2799	2994	2951	2944
V. Of Circulative System	141	136	151	207	228	863	199	168	172	201	229	195
VI. Of Digestive System	433	517	398	393	349	2020	612	641	375	381	350	458
VII. Of Urinative System	32	32	36	48	57	205	45	40	41	47	57	47
VIII. Of Generative System	68	95	80	107	104	454	96	118	92	104	104	103
IX. Of Locomotive System	34	34	39	54	50	211	48	42	45	52	50	48
X. Of Integumentive System	12	17	10	20	10	69	17	21	12	19	10	16
XI. Of Age	1294	954	1875	1441	816	6380	1899	1182	2145	1397	890	1444
XII. Of External Causes	281	302	342	419	347	1691	397	374	391	406	349	383
Total of specified	7076	8070	8741	10,317	9954	44,158	10,000	10,000	10,000	10,000	10,000	10,000
Not specified causes	1262	572	470	499	1949	4752						
Stillborn	49	73	109	149	143	523						
Grand total	8387	8715	9320	10,965	11,346	48,733						

TABLE XXIV.

Illustrating the Influence of Season on Longevity in Massachusetts, from 1844 *to* 1848, *inclusive.*

	Whole number of deaths in					Total	
	1844	1845	1846	1847	1848	Number of deaths 1844 to 1848.	In 10,000, there were 1844 to 1848.
May	602	571	728	722	746	3379	693
June	548	507	653	722	728	3158	648
July	600	715	677	895	943	3830	785
August	831	936	1018	1339	1362	5486	1126
September	940	952	985	1396	1611	5874	1206
October	769	845	820	1066	1114	4614	947
November	649	653	652	791	780	3525	723
December	725	677	718	800	731	3651	749
January	650	687	695	754	819	3595	738
February	642	696	744	784	844	3710	761
March	655	767	826	867	865	3980	817
April	590	709	814	814	803	3730	766
Unknown	186			15		201	41
Total	8387	8715	9320	10,965	11,346	48,733	10,000

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TABLE XXV.

Illustrating the Influence of Age on Longevity in Massachusetts from 1844 *to* 1848, *inclusive.*

	Number of deaths in					Total	
	1844	1845	1846	1847	1848	Number of deaths 1844 to 1848.	In 10,000, there were 1844 to 1848.
Under 1	1313	1551	1695	1946	1945	8450	1734
1 to 2	551	697	676	1000	976	3900	800
2 " 5	566	739	682	879	944	3810	782
Under 5	2430	2987	3053	3825	3865	16160	3406
5 to 10	334	354	461	494	453	2096	430
10 " 20	536	592	675	707	743	3253	668
20 " 30	858	995	1041	1251	1422	5567	1142
30 " 40	671	704	752	890	975	3992	819
40 " 50	485	508	573	717	737	3020	620
50 " 60	437	500	480	613	671	2707	554
60 " 70	602	541	609	691	674	3117	640
70 " 80	751	705	735	826	823	3840	788
80 " 90	578	462	611	677	620	2948	605
90 " 100	137	107	150	156	132	682	140
Over 100	4	6	6	9	9	34	7
Unknown	564	254	174	109	222	1323	271
Total	8387	8715	9320	10,965	11,346	48,733	10,000

TABLE XXVI.

Showing the Mortality from different Diseases in Boston, since the date of the City Charter, viz., from 1821 *to* 1848, *inclusive.*

DISEASES.	Number of deaths in						In each 10,000 deaths, there were in					
	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848
I. *Zymotics.*												
Cholera	34	26	124	40	33	33	69	56	172	50	32	31
Cholera infantum	43	46	70	228	223	190	87	100	99	285	219	181
Croup	94	151	211	204	319	290	191	326	298	255	313	276
Diarrhœa	58	8	15	37	48	154	118	17	22	46	47	147
Dysentery	221	142	172	218	126	552	450	307	243	273	124	526
Erysipelas	1	11	28	46	101	42	2	24	39	57	99	40
Fever, intermittent	1	4	7	6	6	1	2	9	10	7	6	1
" remittent	4	2					8	4				
" typhus	297	294	418	385	498	1093	603	635	591	481	488	1041
Hooping-cough	88	96	158	168	201	107	179	208	223	210	197	102
Influenza	7		53	19	34	18	14		82	24	33	17
Measles	231	101	263	78	197	181	470	218	372	97	193	172
Scarlatina	12	36	487	485	812	342	24	78	689	606	796	325
Small-pox	2	6	17	197	185	136	4	13	24	246	182	129
Syphilis	10	7	9	8	10	6	20	15	13	10	10	6
Thrush	1	3		3	99	2	2	6		4	97	2
Totals	1104	933	2032	2122	2892	3147	2243	2016	2877	2651	2836	2996
II. *Sporadics.*												
Abscess	23	14	20	20	27	18	47	30	28	25	26	17
Atrophy	36		43	168	214	225	73		61	210	210	214
Cancer	34	24	46	57	72	54	69	52	65	71	71	52
Debility	34	48	89	43	151	76	69	104	126	54	148	72
Dropsy	133	104	155	166	197	157	270	225	219	207	193	149

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DISEASES.	Number of deaths in 1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848	In each 10,000 deaths, there were in 1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848
Gout	6	2	2	2	1		12	4	3	2	1	
Hemorrhage	3	7		21	34	25	6	15		26	33	24
Inflammation	3	23	9	26	5		6	50	13	33	5	
Malformation				2						2		
Mortification	40	37	41	24	15	17	81	80	58	30	15	16
Scrofula	18	17	31	41	62	23	37	37	44	51	61	31
Sudden	62	21	35	61	62	26	126	45	50	76	61	25
Tumour	4	8	18	18	51	40	8	17	25	22	50	38
Totals	396	305	489	649	891	671	804	659	692	809	874	638
III. *Of the Nervous System.*												
Apoplexy	45	62	73	115	99	67	91	134	103	144	97	64
Cephalitis	51	22	21	77	57	104	104	47	30	96	56	99
Chorea						1						1
Convulsions	139	170	215	264	263	250	282	368	304	330	258	237
Delirium tremens	23	15	24	48	27	25	47	32	34	60	26	24
Epilepsy	6	6	5	5	13	3	12	13	7	6	13	3
Hydrocephalus	89	181	248	306	429	361	180	392	351	381	421	344
Insanity	8	14	12	8	16	1	16	30	17	10	16	1
Paralysis	63	50	74	58	92	78	128	108	104	72	90	74
Tetanus	3	3	3	6	5	5	6	6	4	8	5	5
Diseases of organs	3	27	59	96	66	63	6	58	83	120	65	60
Totals	430	550	734	983	1067	958	872	1188	1037	1227	1047	912
IV. *Of the Respirative System.*												
Asthma	8	5	9	20	7	8	16	11	13	25	7	8
Bronchitis			3	3	25	23			4	4	24	22
Consumption	1032	1022	1143	1163	1543	1608	2096	2207	1616	1454	1513	1531
Hydrothorax	24	23	18	29	19	21	49	50	25	36	19	20
Laryngitis					10						10	
Pleuritis	22	18	39	51	57	82	45	39	55	64	56	78
Pneumonia	254	326	511	561	753	617	516	704	721	701	738	587
Quinsy	28	15	22	13	22	8	57	32	31	16	22	8
Diseases of organs	15	10	9	17	8	16	30	22	13	21	8	15
Totals	1383	1419	1754	1857	2444	2383	2809	3065	2478	2321	2397	2269
V. *Of the Circulative System.*												
Aneurism	1			4		1	2			5		1
Pericarditis	7	1		5			14	2		6		
Diseases of organs	30	51	83	123	192	168	61	110	118	154	188	160
Totals	38	52	83	132	192	169	77	112	118	165	188	161
VI. *Of the Digestive System.*												
Ascites												
Colic	13	14	13	19	7	6	26	30	19	24	7	6
Dentition	27	56	121	159	209	124	55	121	171	199	205	118
Dyspepsia	13	2	6	7	7	3	26	4	9	9	7	3
Enteritis	68	94	140	220	322	146	130	203	198	275	316	139
Gastritis	4	5	2	13	27	19	8	11	3	16	26	18
Hepatitis	16	2			1		33	4			1	
Hernia	7	5	1	4	6	8	14	11	1	5	6	8
Intussusception				1	1					1	1	
Jaundice	23	11	12	14	19	22	47	24	17	17	19	21
Peritonitis	5						10					
Ulceration						105						100
Worms	13	13	28	28	30	18	26	28	40	35	29	17

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Diseases.	Number of deaths in						In each 10,000 deaths, there were in					
	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848
Diseases of liver	11	59	65	47	80	46	22	127	92	59	78	44
Diseases of spleen	1	1	1				2	2	1			
Diseases of organs	64	118	170	166	260	1080	130	255	240	207	255	1027
Totals	265	380	559	678	969	1577	538	820	791	847	950	1501
VII. *Of the Urinative System.*												
Cystitis	1					1	2					1
Diabetes		3	1	4	6	6		6	1	5	6	6
Gravel	10	11	3	4	9	9	20	24	4	5	9	9
Nephritis												
Diseases of organs	4	1	6	4	18	19	8	2	9	5	17	18
Totals	15	15	10	12	33	35	30	32	14	15	32	33
VIII. *Of the Generative System.*												
Childbirth	17	67	88	99	178	139	35	145	125	124	174	132
Paramenia												
Puerperal fever	34	3		10			69	6		12		
Diseases of organs	6	5	2	15	7	5	12	11	3	19	7	5
Totals	57	75	90	124	185	144	116	162	128	155	181	137
IX. *Of the Locomotive System.*												
Rheumatism	25	15	20	26	32	18	51	32	28	32	31	17
Diseases of hip						13						12
Diseases of joints	10	11	15	15	19	2	20	24	22	19	19	2
Diseases of spine						23						22
Totals	35	26	35	41	51	56	71	56	50	51	50	53
X. *Of the Integumentive System.*												
Fistula		7				1		15				1
Purpura						1						1
Ulcer		2	16	7	15	18		4	23	9	15	17
Diseases of organs	4	4	5	2	13	1	8	9	7	2	13	1
Totals	4	13	21	9	28	21	8	28	30	11	28	20
XI. *Of Age.*												
Infantile	657	226	432	551	687	723	1334	488	611	688	674	688
Senile	177	243	312	333	326	214	360	525	441	415	320	204
Totals	834	469	744	884	1013	937	1694	1013	1052	1103	994	892
XII. *Of External Causes.*												
Accidents	74	65	101	115	128	160	150	141	143	144	126	152
Burns and scalds	41	45	53	70	43	28	83	97	75	87	42	27
Drowned	95	93	88	109	99	83	193	201	125	136	97	79
Executed		1	7	2				2	10	2		
Frozen	1	3	2				2	6	3			
Heat	8	2	3	5	3	5	16	4	4	6	3	5
Intemperance	111	146	198	147	109	76	226	316	280	184	107	72
Lightning												
Malpractice												
Murdered	8		1	4	4	9	16		1	5	4	9
Poisoned	1	5	5	11	4	6	2	11	7	14	4	6
Suffocated	5	2	6	2	6	5	10	4	9	2	6	5
Suicide	19	31	54	52	35	36	39	67	76	65	34	33
Totals	363	393	518	517	431	408	737	849	733	645	423	388

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RECAPITULATION OF TABLE XXVI.

CLASSES OF DISEASES.	Number of deaths in						In each 10,000 deaths, there were in					
	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848	1821 to 1825	1826 to 1830	1831 to 1835	1836 to 1840	1841 to 1845	1846 to 1848
I. Zymotics	1104	933	2032	2122	2892	3147	2243	2016	2877	2651	2836	2996
Sporadics												
II. Of General Location	396	305	489	649	891	671	804	659	692	809	874	638
III. Of Nervous System	430	550	734	983	1067	958	872	1188	1037	1227	1047	912
IV. Of Respirative System	1383	1419	1754	1857	2444	2383	2809	3065	2478	2321	2397	2269
V. Of Circulative System	38	52	83	132	192	169	77	112	118	165	188	161
VI. Of Digestive System	265	380	559	678	969	1577	538	820	791	847	950	1501
VII. Of Urinative System	15	15	10	12	33	35	30	32	14	15	32	33
VIII. Of Generative System	57	75	90	124	185	144	116	162	128	155	181	137
IX. Of Locomotive System	35	26	35	41	51	56	71	56	50	51	50	53
X. Of Integumentive System	4	13	21	9	28	21	8	28	30	11	28	20
XI. Of Age	834	469	744	884	1013	937	1694	1013	1052	1103	994	892
XII. Of External Causes	363	393	518	517	431	408	737	849	733	645	423	388
Total of specified	4924	4630	7069	8008	10,196	10,506	10,000	10,000	10,000	10,000	10,000	10,000
Not specified causes	1100	816	592	745	249	99						
Stillborn	500	409	468	615	923	880						
Grand total	6524	5855	8129	9367	11,368	11,485						

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TABLE XXVII.

Illustrating the Influence of Season on the Longevity of the Sexes in Boston, since the date of the City Charter, viz., from 1821 *to* 1848, *inclusive.*

	1821 to 1825.			1826 to 1830.			1831 to 1835.			1836 to 1840.			1841 to 1845.			1846 to 1848.		
Months.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Jan'y	221	225	446	228	252	480	294	298	592	390	363	753	396	431	827	386	312	698
Feb'y	183	198	381	209	192	401	271	263	534	357	352	709	412	418	830	333	336	669
March	244	208	452	234	205	439	272	290	562	364	357	721	332	435	767	369	309	678
April	250	203	453	231	223	454	286	282	568	344	314	658	419	425	844	416	378	794
May	244	206	450	247	205	452	252	255	507	300	305	605	449	409	858	444	402	846
June	217	186	403	206	155	361	255	235	490	298	273	571	388	348	736	461	349	810
July	262	245	507	239	195	434	269	250	519	354	319	673	448	402	850	522	476	998
August	295	304	599	281	251	532	365	343	708	476	449	925	575	523	1098	764	683	1447
Sept'r	353	321	674	308	264	572	434	387	821	475	467	942	566	522	1088	604	588	1192
Oct'r	307	299	606	258	245	503	411	363	774	385	399	784	442	424	866	510	395	905
Nov'r	245	267	512	212	203	415	417	363	780	351	360	711	412	396	808	397	397	794
Dec'r	273	268	541	200	203	403	425	381	806	363	338	701	418	455	873	400	372	772
Total	3094	2930	6024	5853	2593	5446	3951	3710	7661	4457	4296	8753	5257	5188	10,445	5606	4997	10,603

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TABLE XXVIII.

Illustrating the Influence of Age on the Longevity of the Sexes in Boston, since the date of the City Charter, viz., from 1821 *to* 1848, *inclusive.*

Years.	1821 to 1825.			1826 to 1830.			1831 to 1835.			1836 to 1840.			1841 to 1845.			1846 to 1848.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1	530	411	941	599	422	1021	806	629	1435	1196	972	2168	1004	812	1816	1159	1033	2192
1 to 2	237	330	667	243	310	553	424	481	905	722	682	1404	539	580	1119	704	651	1355
2 to 5	219	175	396	209	190	399	462	401	863	690	597	1287	478	419	897	608	507	1115
Under 5	1086	916	2002	1051	922	1973	1692	1511	3203	2608	2251	4859	2021	1811	3832	2471	2191	4662
5 to 10	120	91	211	113	82	195	169	151	320	245	220	465	212	159	371	269	236	505
10 to 20	113	149	262	121	150	271	144	244	388	231	320	551	175	276	451	269	294	562
20 to 30	306	356	662	365	377	742	485	492	977	510	710	1220	478	596	1074	741	690	1431
30 to 40	348	315	663	402	327	729	529	398	927	526	529	1055	504	454	958	687	555	1242
40 to 50	330	237	567	293	229	522	342	266	608	433	293	726	391	295	686	457	330	787
50 to 60	200	183	383	189	148	337	240	198	438	251	257	508	285	214	499	284	237	521
60 to 70	106	152	258	127	135	262	158	187	345	208	228	436	179	195	374	229	197	426
70 to 80	93	133	226	88	115	203	108	154	262	155	230	385	116	171	287	122	166	288
80 to 90	41	71	112	48	66	114	46	75	121	65	122	187	54	83	137	54	81	135
90 to 100	6	15	21	5	11	16	11	17	28	10	20	30	6	22	28	14	19	33
Unknown	345	312	657	51	31	82	27	17	44	15	8	23	36	20	56	9	1	10
Total	3094	2930	6024	2853	2593	5446	3951	3710	7661	4457	4296	8753	5257	5188	10,445	5606	4997	10,603

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TABLE XXIX.

Showing the Population of Boston at different Periods.

1810	Under 10.	10 to 16.	16 to 26.	26 to 45.	Over 45.	Totals.	Not White.	Total.
Males	4430	1869	3679	4408	1363	15,749		
Females	4396	2091	4013	4174	1896	16,570		
Totals	8826	3960	7692	8582	3259	32,319	1468	33,787
1820							Coloured	
Males	5283	2416	3564	7345	1500	20,108	809	
Females	5399	2965	4544	5973	2569	21,450	931	
Totals	10,682	5381	8108	13,318	4069	41,558	1740	43,298
1825								
Males	6206	3061	7622	8458	2560	27,907	974	
Females	6309	3616	7589	7735	3204	28,453	943	
Totals	12,515	6677	15,211	16,193	5764	56,360	1917	58,277
1835								
Males	8636	3743	9633	12,483	3327	37,822	788	
Females	8866	4189	10,120	11,377	4472	39,024	969	
Totals	17,502	7932	19,753	23,860	7799	76,846	1757	78,603

1830	Under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Over 80.	Total.	Coloured.	Total.
Males	3818	2941	2469	3165	7729	4132	2168	1077	475	164	33	28,171	865	
Females	4004	2978	2847	3544	7958	4661	2698	1413	801	325	117	31,346	1010	
Total	7822	5919	5316	6709	15,687	8793	4866	2490	1276	489	150	59,517	1875	61,392
1840														
Males	5711	4246	3368	4043	15,612	9404	3056	1476	606	243	79	47,844	1399	
Females	5558	4465	3553	4812	11,242	6566	3492	1920	951	402	151	43,112	1028	
Total	11,269	8711	6921	8855	26,854	15,970	6542	3396	1557	645	230	90,956	2427	93,383

1845	Under 1.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Under 5.	5 to 10.	10 to 15.	15 to 16.	16 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.
Males	1626	1361	1459	1423	1365	7234	5690	4708	874	4325	7612	7397	6129	4326
Females	1518	1265	1709	1354	1368	7214	5668	4928	952	4798	7765	6821	5699	3827
Total	3144	2626	3168	2777	2733	14,448	11,358	9636	1826	9123	15,377	14,218	11,828	8153

Continued	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 75.	75 to 80.	80 to 85.	85 to 90.	90 to 95.	95 to 100.	Over 100.	Total.
Males	3117	1874	1337	805	714	348	202	113	56	17	8	4		56,890
Females	3073	1965	1646	972	916	490	387	191	106	42	11	4	1	57,476
Total	6190	3839	2983	1777	1630	838	589	304	162	59	19	8	1	114,366

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TABLE XXX.

Showing the Condition of Dwellings in Boston, in 1845.

	Wards.												
	1	2	3	4	5	6	7	8	9	10	11	12	Total.
Brick . .	406	221	572	503	764	652	535	342	620	793	763	82	6253
Wood . .	511	325	335	462	295	281	97	104	204	319	650	976	4559
Total inhab.	917	546	907	965	1059	933	632	446	824	1112	1413	1058	10,812
Inhab. in part	42	116	88	140	43	37	110	110	48	98	74	40	946
" by 1 family	201	41	120	281	274	255	197	82	280	227	286	281	2525
" " 2 "	75	16	35	58	91	58	3	10	25	69	124	97	661
" " 3 "	16	4	5	26	10	7	1	2	5	8	14	19	117
" " 4 "	2	6	1	6	2	3			5	5	5	2	37
" " 5 "	1		1	1		2		1		2	2	1	11
" " 6 "							1			1	1	3	6
" " 7 "	1							1		1	1		4
These are owned by an inhabitant	296	67	162	372	377	325	202	96	315	313	433	403	3361
Inhabited by 1 family	272	159	312	345	371	264	318	112	266	430	524	370	3743
2 "	206	123	248	138	223	185	54	56	139	178	357	203	2110
3 "	85	52	108	89	60	73	26	33	45	99	66	49	785
4 "	35	54	50	16	21	51	14	19	37	47	21	17	382
5 "	6	26	16	4	4	26	14	29	13	14	4	7	163
6 "	11	25	9	1	2	3	2	20	4	14	3	5	99
7 "	1	15	1		1	3	2	28	1	7	3	1	63
8 "	4	10	1			1		29	1	6		1	53
9 "	1	6				1		11	1	2			22
10 "		2						6	2		1	2	14
10 to 30		7						7		2	1		17
Not owned by an inhabitant	621	479	745	593	682	608	430	350	509	799	980	655	7451
No. families in	1635	1542	1695	1482	1614	1667	871	1461	1325	2006	2223	1654	19,175
to each house	1.78	2.82	1.86	1.53	1.52	1.78	1.37	3.27	1.60	1.80	1.57	1.56	1.77
No. persons to do.	9.12	17.79	11.08	11.20	8.04	8.75	10.55	19.15	10.39	11.37	8.68	9.47	10.57
" to family	5.11	6.30	5.93	7.29	5.27	4.90	7.66	5.84	6.46	6.30	5.51	6.05	5.96

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TABLE XXXI.

Showing the Mortality from different Diseases in Lowell, since the date of the City Charter, viz., from 1836 *to* 1848, *inclusive.*

DISEASES.	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
I. *Zymotics.*								
Cholera	6	13	9	28	41	70	37	49
Cholera infantum	80	148	127	355	547	798	529	620
Croup	38	50	86	174	260	270	358	305
Diarrhœa	48	44	30	122	328	237	125	214
Dysentery	54	48	381	483	369	259	1588	844
Erysipelas	7	14	14	35	48	75	58	59
Fever, intermittent	1		1	2	7		4	4
" remittent								
" typhus	168	175	322	665	1148	943	1342	1162
Hooping-cough	21	36	21	78	144	194	87	136
Influenza		1		1		5		2
Measles	25	30	46	101	171	162	192	177
Scarlatina	97	96	113	306	663	518	471	535
Small-pox	9	2	22	33	61	11	92	58
Syphilis		1		1		5		2
Thrush	1			1	7			2
Totals	555	658	1172	2385	3794	3547	4883	4169
II. *Sporadics.*								
Abscess	3	4	5	12	21	22	21	21
Atrophy	23	13	34	70	157	70	142	123
Cancer	2	8	13	23	14	43	54	40
Debility								
Dropsy	15	9	13	37	102	49	54	65
Gout								
Hemorrhage	4	11	8	23	27	59	33	40
Inflammation								
Malformation	8	14	4	26	55	75	17	46
Mortification	4	6	12	22	27	32	50	39
Scrofula	2	10	6	18	14	54	25	32
Sudden								
Tumour	1			1	7			2
Totals	62	75	95	233	424	404	396	408
III. *Of the Nervous System.*								
Apoplexy	15	21	26	62	102	113	108	107
Cephalitis	66	32	27	125	451	172	113	220
Chorea								
Convulsions	31	54	40	125	212	291	167	220
Delirium tremens	16	14	8	38	110	75	33	66
Epilepsy	2	4	2	8	14	22	8	14
Hydrocephalus	30	110	106	246	205	593	442	429
Hydrophobia			1	1			4	2
Insanity		1		1		5		2
Paralysis	1	3	2	6	7	16	8	11
Tetanus			1	1			4	2
Disease of organs	13	11	38	62	89	59	159	107
Totals	174	250	251	675	1190	1346	1046	1180
IV. *Of the Respiratory System.*								
Asthma		1	5	6		5	21	11
Bronchitis	13	23	13	49	89	124	54	85
Consumption	229	345	355	929	1565	1860	1479	1624
Hydrothorax	2	4	5	11	14	22	21	19

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DISEASES.	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
Laryngitis	2			2	14			4
Pleuritis	11	6	5	22	75	32	21	38
Pneumonia	97	114	113	324	663	615	471	566
Quinsy								
Diseases of organs	3	3		6	21	16		11
Totals	357	496	496	1349	2441	2674	2069	2358
V. *Of the Circulative System.*								
Aneurism	2	1		3	14	5		5
Pericarditis	5	9	2	16	34	49	8	28
Diseases of organs	15	20	40	75	102	108	167	132
Totals	22	30	42	94	150	162	175	165
VI. *Of the Digestive System.*								
Ascites		1		1		5		2
Colic	1			1	7			2
Dentition	1	7	27	35	7	38	113	61
Dyspepsia		1		1		5		2
Enteritis	23	25	19	67	156	135	7	117
Gastritis	12	15	6	33	82	81	25	58
Hepatitis	3	2		5	21	11		9
Hernia	2	1	1	4	14	5	4	7
Intussusception	5	2		7	34	11		12
Jaundice	4	3	5	12	27	16	21	21
Peritonitis	11	16		27	75	86		47
Ulceration	1		5	6	7		21	11
Worms	2		1	3	14		4	5
Disease of liver		5	7	12		27	29	21
" spleen	1			1	7			2
" organs	1	6	7	14	7	33	29	24
Total	67	84	78	229	458	457	325	401
VII. *Of the Urinative System.*								
Cystitis	1			1	7			2
Diabetes		3		3		16		5
Gravel								
Nephritis								
Diseases of organs	1	5	4	10	7	27	17	17
Totals	2	8	4	14	14	43	17	24
VIII. *Of the Generative Syst.*								
Childbirth	4	5		9	27	27		16
Paramenia								
Puerperal fever	19	21	26	66	129	113	108	115
Diseases of organs	5	6	1	12	34	32	4	21
Totals	28	32	27	87	190	172	112	152
IX. *Of the Locomotive System.*								
Rheumatism		1	5	6		5	21	11
Disease of hip								
" joints	1	1		2	7	5		4
" spine	1	3	6	10	7	16	25	17
Totals	2	5	11	18	14	26	46	32
X. *Of the Integumentive Syst.*								
Fistula								
Purpura	4		1	5	27		4	9

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DISEASES.	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
Ulcer								
Diseases of organs	1			1	7			2
Totals	5		1	6	34		4	11
XI. *Of Age.*								
Infantile	91	128	131	350	622	690	546	612
Senile	11	7	22	40	75	38	91	70
Totals	102	135	153	390	697	728	637	682
XII. *Of External Causes.*								
Accidents	17	28	52	97	116	149	217	169
Burns and scalds	16	9		25	109	49		44
Drowned	36	20	11	67	246	108	46	117
Executed								
Frozen								
Heat	2		2	4	14		8	7
Intemperance	1	5	1	7	7	27	4	12
Lightning		1		1		5		2
Malpractice								
Murdered								
Poisoned	2	5		7	14	27		12
Suffocated	4	2		6	27	11		11
Suicide	9	12	4	25	61	65	17	44
Totals	87	82	70	239	594	441	292	418

RECAPITULATION OF TABLE XXXI.

CLASSES OF DISEASE.	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
I. Zymotics	555	658	1172	2385	3794	3547	4883	4169
Sporadics								
II. Of General Location	62	75	95	233	424	404	396	408
III. Of Nervous System	174	250	251	675	1190	1346	1046	1180
IV. Of Respirative System	357	496	496	1349	2441	2674	2069	2358
V. Of Circulative System	22	30	42	94	150	162	175	165
VI. Of Digestive System	67	84	78	229	458	457	325	401
VII. Of Urinative System	2	8	4	14	14	43	17	24
VIII. Of Generative System	28	32	27	87	190	172	112	152
IX. Of Locomotive System	2	5	11	18	14	26	46	32
X. Of Integumentive System	5		1	6	34		4	11
XI. Of Age	102	135	153	390	697	728	637	682
XII. Of External Causes	87	82	70	239	594	441	292	418
Total of specified causes	1463	1855	2400	5718	10,000	10,000	10,000	10,000
Not specified causes	245	141	64	450				
Still-born	131	138		269				
Grand total	1839	2134	2464	6437				

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TABLE XXXII.

Illustrating the Influence of Sex on Longevity in Lowell, since the date of the City Charter, viz., from 1836 *to* 1848, *inclusive.*

Years.	Males.	Females.	Unknown.	Total.	Years.	Males.	Females.	Unknown.	Total.
1836	113	140		253	1844	163	196	3	362
1837	140	161		301	1845	171	192		363
1838	203	204		407	1846	331	359		690
1839	157	183		340	1847	442	507		949
1840	186	199	22	407	1848	398	427		825
1841	214	209	11	434					
1842	230	239	4	473	Total	2902	3225	41	6168
1843	154	209	1	364					

TABLE XXIII.

Illustrating the Influence of Season on Longevity in Lowell, since the date of the City Charter, viz., from 1836 *to* 1848, *inclusive.*

	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
January - -	126	138	120	384	737	691	487	638
February - -	126	141	150	417	737	706	609	684
March - - -	144	148	152	444	843	742	617	734
April - - .	132	145	157	434	773	726	637	712
May - - -	122	155	143	420	714	777	580	690
June - - -	87	133	178	398	509	666	722	652
July - - -	121	177	263	561	708	887	1068	888
August - - -	227	289	431	947	1329	1448	1749	1509
September - -	190	232	341	763	1112	1162	1384	1219
October - -	159	158	222	539	931	792	901	875
November - -	125	132	168	425	732	661	682	692
December - -	149	148	139	436	875	742	564	727
Total - - -	1708	1996	2464	6168	10,000	10,000	10,000	10,000
Mean - - -	142.33	166.33	205.33	514.00	833.33	833.33	833.33	833.33

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TABLE XXXIV.

Illustrating the Influence of Age on Longevity, in Lowell, since the date of the City Charter, viz., from 1836 *to* 1848, *inclusive.*

Years.	Number of deaths in				In each 10,000 deaths, there were in			
	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848	1836 to 1840	1841 to 1845	1846 to 1848	1836 to 1848
Under 1	368	488	458	1314	2153	2448	1859	2153
1 to 2	261	260	311	832	1527	1302	1262	1364
2 to 5	168	216	326	710	983	1082	1323	1129
Under 5	797	964	1095	2856	4663	4832	4444	4646
5 to 10	79	92	131	302	464	461	532	486
10 to 15	52	48	54	154	305	240	219	255
15 to 20	135	137	196	468	790	686	795	757
20 to 30	253	278	417	948	1480	1392	1692	1521
30 to 40	157	199	214	570	919	997	869	928
40 to 50	95	108	134	337	556	541	544	547
50 to 60	72	76	94	242	424	380	382	395
60 to 70	33	40	73	146	193	200	296	230
70 to 80	18	32	35	85	106	160	142	136
80 to 90	8	9	20	37	47	46	81	58
90 to 100	1	1	1	3	6	5	4	5
Unknown	8	12		20	47	60		36
Totals	1708	1996	2464	6168	10,000	10,000	10,000	10,000

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TABLE XXXV.

Showing the Population of Lowell at different Periods.

	Under 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	Over 60	Totals.	Coloured includ.
1820									
Total . .								about 200	
1828									
Males . .								1,342	
Females . .								2,190	
Totals . .								3,532	
1830									
Males . .	495	405	958	358	111	37	21	2,392	7
Females . .	504	1,182	1,792	353	164	57	29	4,085	4
Totals . .	999	1,587	2,750	711	275	94	50	6,477	11
1833									
Males . .	905	813	1,638	792	202	64	23	4,437	
Females . .	968	2,998	2,914	675	132	159	80	7,926	
Totals . .	1,873	3,811	4,552	1,467	334	223	103	12,363	33
1836									
Males . .	1,489	1,114	2,200	966	372	144	60	6,345	22
Females . .	1,520	2,990	4,689	1,296	475	222	96	11,288	22
Totals . .	3,009	4,104	6,889	2,262	847	366	156	17,633	44
1840									
Males . .	1,865	1,369	2,143	1,128	520	224	92	7,341	
Females . .	1,865	3,464	5,568	1,605	650	318	170	13,640	
Totals . .	3,730	4,833	7,711	2,733	1,170	542	262	20,981	58
1844									
Males . .	2,441	1,621	2,565	1,559	773	320	153	9,432	17
Females . .	2,391	3,642	5,945	2,098	946	431	244	15,697	27
Totals . .	4,832	5,263	8,510	3,657	1,719	751	397	25,129	44
Penobscot Indians								34	
Total . .								25,163	
1846									
Total . .								29,127	

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TABLE XXXVI.

Showing the Temperature of the Air in Boston, as indicated by the Thermometer.

	1846.			1847.			1848.		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
January	30°02	49°	1°	29°33	54°	5°	31°85	59°	5°
February	24.68	47	2	29.07	49	5	28.21	46	1
March	39.17	61	9	32.70	51	17	34.70	66	8
April	50.25	83	31	44.11	83	17	46.79	74	30
May	56.17	79	43	53.45	81	37	58.47	88	45
June	64.92	88	54	56.43	92	49	65.90	91	43
July	71.61	96	57	72.57	96	54	70.04	93	54
August	71.26	93	55	68.81	92	54	69.72	92	50
September	67.12	96	47	61.40	85	45	60.02	82	36
October	50.45	80	26	49.70	73	22	50.77	71	34
November	44.19	64	21	44.78	67	8	37.92	56	15
December	29.66	68	11	36.96	65	4	36.70	58	9

TABLE XXXVII.

Showing the Temperature of the Air in Lowell, as indicated by the Thermometer.

	1846.				1847.				1848.			
	Mean.		Max.	Min.	Mean.		Max.	Min.	Mean.		Max.	Min.
	Morn.	2 P.M.			Morn.	2 P.M.			Morn.	2 P.M.		
January	19°83	32°94	48°	—4°	19°00	31°39	46°	—1°	19°50	33°31	58°	—10°
February	10.40	30.08	42	—10	19.04	32.71	50	—2	17.16	34.24	46	— 2
March	26.76	45.94	63	1	22.27	41.11	52	8	33.81	39.67	66	2
April	37.25	61.09	83	23	32.20	52.92	90	10	36.00	55.67	76	24
May	48.07	66.42	83	32	45.00	64.58	85	32	51.15	68.93	92	33
June	57.80	79.96	96	43	56.58	77.28	100	48	57.00	74.96	95	41
July	62.68	83.73	101	50	62.81	85.77	99	50	62.37	81.65	94	50
August	61.50	83.80	98	49	58.96	80.24	91	50	60.92	82.44	93	49
September	57.19	77.77	99	40	54.34	68.69	89	40	50.26	69.27	84	32
October	41.22	57.85	83	23	38.73	56.35	72	19	41.00	56.19	72	28
November	38.16	47.91	59	26	37.08	49.88	70	5	27.32	42.23	54	12
December	21.77	32.11	46	7	29.74	40.15	64	—3	28.67	36.81	60	0

No available systematic barometric observations have ever been made in Lowell.

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TABLE XXXVIII.

Showing the Temperature of the Water, and the Amount of Water which fell in the forms of Rain and Snow in Lowell.

	1846.				1847.				1848.			
	Mean.	Max.	Min.	Inch's water fell.	Mean.	Max.	Min.	Inch's water fell.	Mean.	Max.	Min.	Inch's water fell.
January	32°	32°	32°	2.44	32°	32°	32°	5.42	32°	32°	32°	2.83
February	32	32	32	1.82	32	32	32	3.14	32	32	32	2.10
March	33.22	42	32	3.27	32	32	32	3.46	33.41	40	32	3.54
April	49.54	58	41	1.31	39.34	46	32	2.26	48.29	54	41	1.60
May	60.23	65	56	4.21	54.73	63	44	2.15	58.63	67	51	7.41
June	69.92	76	60	2.40	65.48	75	60	6.75	66.69	74	59	4.01
July	76.27	81	72	3.56	78.81	82	73	3.01	74.12	79	69	2.16
August	77.54	81	71	2.79	74.77	78	73	3.81	74.41	80	68	3.15
September	72.61	82	64	.64	66.44	76	59	4.85	64.58	74	55	4.06
October	55.00	64	45	1.61	52.15	58	42	3.01	51.11	57	46	5.00
November	43.50	47	34	2.70	43.88	48	36	3.70	38.76	48	34	2.68
December	32.15	33	32	1.25	35.92	44	32	4.70	35.12	37	32	3.75
Total				28.03				46.26				42.29

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H.—7.

Sanitary Report of Baltimore. By JAMES WYNNE, M.D.

BALTIMORE is a compactly built commercial town, lying on the north bank of the Patapsco river; a short, but bold and wide stream, nine miles above its entrance into Chesapeake Bay, and two hundred miles inland from the Atlantic Ocean. It is partially divided by an inlet, which extends into the town about one and a half miles. On the north side of this inlet, that portion of the city devoted to commerce and shipping is mainly built; but the populous part of the city is gradually extending around the basin at the head of the inlet to its southern bank, which is the eastern termination of the Baltimore and Ohio Railroad, a work intended to connect the Atlantic coast with the great valley of the Mississippi, as well as the outlet for the coal trade of the Alleghany coal basin. From this inlet, which forms a characteristic feature in the scenery of Baltimore, the surface rises toward the north and west into a range of gentle elevations, which extend beyond the town into a series of beautiful and highly picturesque heights, and finally terminate in an undulating country of great salubrity dotted by the country-seats, occupied by the more opulent inhabitants of the city as their summer residences.

Baltimore is nominally divided into four districts, materially differing from each other in general character and population. 1st. *The Point*, so called because the inlet here diverges from the main stream, is the most easterly portion of the city, and commands the greatest depth of water. The greater part of the ship-building and manufactures are carried on here. In addition to the population engaged in these avocations, it is the favourite resort for seamen and newly arrived emigrants, especially the German. 2d. *Old Town* lies between the Point and the city proper, and is principally occupied by mechanics and labourers. 3d. *The City*, so styled, which extends over the undulating surface already described, is the centre of trade, and the residence of the more opulent classes. 4th. *The Spring Garden District* reaches from the head of the inlet to the Patapsco River, including the south side of the basin. It is occupied by mechanics, labourers, and a coloured population. Both the

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Point and Old Town have a gentle inclination towards the water, but without a rapid descent. The city, however, which is divided from Old Town by a rapid stream, possesses a very undulating surface, and may truly be said to have been built "over hill and dale." The Spring Garden District, on the contrary, is level and low, as indeed is the whole bank of the river at that point, and is liable, in common with the opposite bank, to remittent and intermittent diseases. From the clay of this district bricks are manufactured, of unsurpassed excellence, in vast quantities, not only for the use of the city, but for exportation, which, by the exposure of a newly denuded surface, and the collection of pools of water, serves greatly to increase the tendency to febrile diseases.

Geological Formation.—The soil on which Baltimore is located consists of clay and sand-hills, covered in many places with a thick coat of gravel. These hills have a north-east and south-west direction, and the adjacent country is marked by short spurs to the south-east with rounded summits, between which its drainage is effected. The soil, with an admixture of lime and plaster, is made quite productive. That consisting of coarse granitic aggregates is ranked as best. It lies upon the upper limits of the great Atlantic arenaceous and argillaceous deposits, resting upon the chain of primary rocks.

Drainage.—From what has already been said, it will be seen that the town, with the exception of the Spring Garden suburb, is admirably adapted, by nature, for surface drainage. Its peculiar facilities consist not only in the undulating nature of its surface, but likewise in the sand and gravel beds which lie beneath, and admit a free percolation of fluid particles. It is traversed by several valleys, coursing in a south-east direction toward the inlet. The outlet for the north-western portion of the city is through Liberty and Hanover streets; but the most extensive valley is that which bounds the City and Old Town, in whose bed flows a rapid, turbulent, and highly useful stream, called "Jones' Falls," which fulfils the purpose of an open sewer to a considerable part of both these sections of the town. Harford Run, a more sluggish stream, flows in a similar direction, and empties itself into the river between the Point and Old Town.

The drainage of the town is under the control of the city commissioners, who are not at liberty, however, to project new works without the direction and assent of the common council. There being no public survey of levels, the grades are far from regular. The principal inconvenience arising from this source at present, is

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not the inability of the surface drains to carry off the water, but the unnecessary, and frequently injurious accumulations of it in certain localities during violent showers. It is the opinion of those best informed on this subject, that a general survey of levels would not have attained the object more *effectively*, but more *conveniently* than at present. The grades of the streets are extremely variable, the lowest being one inch, and the highest fourteen inches, in ten feet. All the streets are paved, and supplied with gutters on either side, at the cost of the property holders. As the improvements advance, they are anticipated by grading and paving the streets, with an especial eye to surface drainage; and as in a greater part of the town this is the only mode of draining, an inability to perform that office would be looked upon as a *nuisance*, and redressed. The grades are regulated by the city surveyor, and it is presumed no new streets are laid out, where every advantage the nature of the surface will admit of, is not taken to effect this object.

The arrangements for under-ground drainage are very meagre, the aggregate of all the sewers not exceeding two miles in length. They are usually constructed near the streams in which the outlet for surface drainage is sought, to overcome some slight rise of surface; and as the distance is short, and the flow of water usually abundant, a very defective structure is frequently found to answer the purpose. The sewers usually have an arched roof of mason work, but a flat bottom, frequently made of timber instead of masonry. It is manifest that a sewer thus defective could not be made efficient, except under the most favourable circumstances, and their success is rather an argument in support of the favourable position of the town for drainage than an evidence of their excellence. It is a singular fact that the most defectively drained district skirts along Jones' Falls, where the facilities for drainage are very great; and a stranger passing from the clean and well-washed streets in the upper part of the city, into this district, loaded with filth, and giving off the most offensive exhalations, would hardly believe himself in a district under the same municipal regulations. Harrison and Frederick streets, and the lower part of Saratoga, are examples of the correctness of this assertion.

Floods.—Jones' Falls has, on three different occasions, overflowed its banks, inundating the first stories of the houses in its vicinity, and in two instances reaching to the second, doing great damage to life and property. It was supposed that the abutments of the numerous bridges which crossed it, by checking the floating matter carried down by the mad current, and thus forming dams, increased

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the volume of the stream to such an extent as to cause its overflow. These abutments have since been removed, and the bridges now span the stream by a single lofty arch. No flood, fortunately, has since occurred to test the reliance to be placed on this measure. It appears, however, adequate to the end proposed.

Street Cleansing and Nuisances.—The scavenging of the city is placed under the control of the Board of Health, a portion of whose duty it is to see that the streets are kept in a proper condition. At present, the town is divided into five districts, let out to separate contractors, each of whom is bound by a penalty to keep his district clean. The aggregate amount paid by the city for this duty is between six and seven thousand dollars, and the street refuse, which is looked upon as the most valuable part of the remuneration. There is no fixed time for cleansing the streets, and they receive attention in proportion to their tendency to accumulate filth, but never more than twice a week, more frequently once in two weeks. The narrow lanes, inhabited by the poor, although more liable to become filthy, receive less attention than the more public thoroughfares, and are always in a more dirty condition. It may be proper to remark that the refuse of the streets is not collected together by brooms, but is gathered into heaps by hoes, and carted away. The most effectual scavenger is a copious shower, which, from the rapid descent of the streets, sweeps away with it an incredible amount of street washings. These showers are very frequent during the summer months, and are always hailed by me as a great blessing, on account of the manner in which they purify the streets. There are no regular depots for the street manure, but each contractor deposits the manure from his district on such vacant lots as he can obtain in the outskirts of the town, until disposed of to the surrounding country people, or carried away in boats.

The courts are under the jurisdiction of the police, who require the owners to keep them clean; but as there is no regular system adopted, they frequently become not only offensive, but foci of disease. They may be reported to the Board of Health as nuisances, when in this condition; but when it is considered how unwholesome an atmosphere the inhabitants of a populous town will bring themselves to tolerate, it is not a matter of surprise that they frequently freight the air with unhealthy emanations for months together before becoming a source of complaint. I remember being called to visit a poor female, under the charge of a midwife, in an extremely difficult case of labour, in a narrow court, very near to my own residence, and immediately behind the residences of several of the most

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fashionable families of the city. The only ingress for air into the court, which was surrounded by the high houses on the outer side of the square, was by means of a narrow entrance, immediately adjoining which was a large piggery, constantly emitting the most offensive exhalations. The air of the whole court was close and oppressive, and although I had the good fortune to leave my patient safely delivered, I predicted in my own mind the death of her infant, from the want of wholesome atmosphere, which event was realized a few weeks after. I had occasion to observe, that out of a population of about fifty persons inhabiting this court, several deaths took place within a few weeks. The most surprising feature of this case is, that the wealthy inhabitants, surrounding the square, should be so little conversant with the actual condition in which they lived as to be content to inhale the noxious emanations from this confined court.

My decided conviction is, that the superficial street cleansing to which the city is now subjected, does not reach the evil it aims to overthrow; and that nothing short of a careful sweeping of every part each day, *including the narrow courts and alleys where it is most needed*, will accomplish this object.

Public Nuisances.—An important nuisance is found in the refuse animal and vegetable matter, deposited by the inhabitants of the small courts and alleys in them during the night. There is a city ordinance against thus disposing of the refuse of the kitchen; but those who pass through the lanes of the town have abundant testimony to prove its disregard. This refuse, when not eaten by the swine, which are fortunately permitted to perambulate them at their pleasure, remain subject to the influences of decomposition until the streets are again cleansed; and as these lanes are never entered by the scavengers more than once a week, it is not unusual for decomposing matter to remain in them for several days—sufficiently long to generate all its noxious properties, and vitiate the atmosphere of the whole neighbourhood in which it is situated. The remedy for the removal of this important nuisance is sufficiently obvious, and consists: 1st. In sending carts into every part of the city once each day, to collect the refuse brought to them from the houses; and 2d. In submitting the streets to a thorough sweeping once every day.

Each house, however humble, is provided with a privy supplied with a pit, enclosed with a brick wall in hydraulic cement. These pits are cleansed whenever they require it by the night-men, who dispose of their contents for manure. In the better class of houses

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the patent water-closets are in very general use. In these, the excrementitious matter is carried by a jet of water through a soil-pipe, but finally finds its way into the pit, and yet remains undisposed of. I have recommended to several architects to carry these soil-pipes beneath the ground for some distance until they meet a bed of gravel, freely traversed by a subterranean stream of water, which can always be found beneath the city, and thus permit it to be diffused. The practicability is admitted, but, owing to the additional expenditure, it has never been carried into operation.*

Slaughter-Houses.—No new slaughter-house is allowed within the limits of the city, and those already erected are usually associated with each other. I am strongly of the opinion that the city should possess one slaughter-house under its immediate supervision, situated some distance from the populous parts of the town, and subjected to a rigid surveillance, where everything exposed for sale by the butchers in the market should be killed. The offensive matters might, by this means, be judiciously disposed of, and, at the same time, a scrutiny exercised to ascertain that no animal was killed, whose meat was not in a proper condition to be eaten.

Manufactures.—The smoke and offensive fumes from different manufactories in various parts of the town, may likewise be included among the nuisances. Of these, the glue and poudrette manufactories stand foremost. In addition to these, soap establishments, and gas, chemical, and white-lead works, are prominent.

Burial-Grounds.—There are numerous burial-grounds within the populous part of the city; but the number of recent interments in them is comparatively trivial. Green Mount Cemetery, situated about two miles from the centre of the town, and comprising a space of upwards of one hundred and fifty acres, rendered extremely picturesque by nature, and highly improved by art, is now the great receptacle for the dead of the better classes, and Potter's Field for those in a more humble condition. It is difficult to induce the inhabitants of an increasing town to look very far beyond their present wants, and distant as Green Mount Cemetery now appears to be from the populous part of the town, it is easy to foresee that not many years will elapse before it will be surrounded by a dense population.

* Since writing the above, I have seen several successful attempts made to carry off the soil in the manner indicated. Water has usually been reached at a depth of about twenty feet.

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Want of Sewers.—The absence of a complete system of underground sewerage, constitutes an important nuisance operating in all parts of the town, but most severely in the low, level, and uncleanly portions occupied by the poor. The appropriations for the present year for building sewers, have been more extensive than any previous one, and should a registration-bill pass the council, pointing out which are the unhealthy parts of the city, I make no doubt but that this much neglected subject would receive the attention it merits. Harford Run, which receives an immense amount of animal and vegetable deposit, and which has too sluggish a stream to carry it into the river, is a fruitful source of fever. An ordinance for tunneling this stream passed the city council at its last session.

Water.—Baltimore is supplied with water in part by an incorporated company, called the Baltimore Water Company, and in part by pumps and public fountains. The pumps and public springs are under the control of the city commissioners, who erect a new pump at the expense of the property holders, whenever eight of them residing in the vicinity of the proposed pump join in a petition for that purpose. There are several public fountains enclosed in small public squares, and tastefully ornamented in various sections of the town, supplied by springs. The pump water is offensive to the taste, and extremely hard, with a few exceptions. It is, therefore, seldom made use of by those who can supply themselves with the water company's water.

This company was chartered in 1808, and obtains its supply of water from Jones' Falls, some distance above the town. This stream derives its origin from innumerable springs, taking their rise in the elevated slate region, north of the town, and passes with a very rapid descent over a rocky bed through an exceedingly romantic limestone valley. This water, which is pure and soft, is not only agreeable to the taste, but is well adapted to all household purposes. As an evidence of its purity, the dyers find no difficulty in fixing the most delicate colours with it.

The company have two reservoirs. One, fed by the flow of the stream; and the other, by pumps. The lower reservoir, or that fed by the flow of the stream, was built in 1846, and is capable of holding fifteen millions of gallons. This reservoir is intended to supply the lower portion of the city on all occasions; and, at the same time, when the necessity occurs, to give a portion of its contents to the upper reservoir. The upper reservoir was built in 1838, and holds three millions of gallons. The water is raised into this reservoir ninety-five feet, by means of two pumps, of twelve and three-

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fourth inches bore, and six feet stroke, and worked by one water-wheel of sixteen feet diameter. It requires the waste of eleven gallons of water to raise one into the reservoir; and, in order to provide against a scarcity, an engine is at hand to work the pumps. The mains are laid down in about one-half of the populated portion of the city, and are being extended daily to such sections as will pay an interest on the expenditure. The mains at the reservoir are eighteen inches in diameter, and decrease as they recede to sixteen, twelve, ten, eight, six, four, and three inches. These mains were formerly of wood, but since 1820 they have been made exclusively of iron.

The service-pipes are exclusively of lead, which metal has been in use by the company since 1820. About five thousand houses are supplied with hydrants, and the use of the water is unlimited. The daily consumption in summer varies from five hundred thousand to one million gallons, but is considerably diminished in winter. For the prevention of fires, there are one hundred and fifty fire plugs, and a full head of water is kept on in all the mains, so that it can be obtained as soon as the hose is attached. The city provides no free hydrants for the poor.

The company conceives its ability undoubted to supply an entire city, twice as large as Baltimore, with an unlimited quantity of water. Should, however, its resources, in time to come, not be equal to the wants of the population, the city has, in its vicinity—Gwynn's Falls—a stream whose capacity in the dry season would enable it to furnish upwards of ten millions of gallons in twenty-four hours, flowing from the same region, and possessed of the same qualities, which can be diverted into a reservoir by the natural flow of the stream on the heights overlooking the town, at an elevation of 185 feet above tide water, at an estimated expense of not more than half a million of dollars.*

It may be proper, in looking to the prospective demand for an additional supply of water for the city, to mention that very extensive and accurate surveys were conducted by John Randel, Jr., Esq., of all the eligible streams in the neighbourhood of the town in 1835, under the direction, and at the cost of the city government.

In Mr. Randel's report, laid before the councils, April 21st, 1836, he gives a decided preference to the Great Gunpowder Falls, which, according to an accurate gauge made by him in the driest season, is capable of yielding sixty-four millions, ninety-three thousand and ninety-one wine gallons of water every twenty-four hours.

* Report of the Water Committee to the City Council in 1829. The increased value of mill-seats on this stream in twenty years would probably now double the estimate of the committee.

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Across this stream, which was to be directed into the city, from a distance of twelve or thirteen miles, "A dam is to be built," says this report, "near Tyson's (formerly Jessup's) mills, and another dam across the western run, near the York turnpike. These dams are to be connected by an aqueduct, and this aqueduct is to be continued across the valley of the Beaver dam, to the high ground or hill of limestone rock, lying between a branch of Jones' Falls south of Timonium, and a branch of Beaver Dam, near Cockey's. This hill or rock is to be cut down to such a depth, as will permit the water to be carried by an aqueduct from a point from ten to twenty feet below the level of the top of this dam, on a descent of about one foot per mile to and through that deep cut, and thence along the west slope of Jones' Falls Creek to an ample reservoir, to be provided in the vicinity of the city of Baltimore." This reservoir would have been three hundred feet above tide water. Although this work would have exceeded that of Gwynn's Falls in cost, by at least half a million of dollars, it is probable that it might have been constructed, but unfortunately a difference ensued between Mr. Randel and the city government, which resulted in his withdrawing his surveys, and their abandonment of the project.

The following prices are demanded by the company for the use of its water:—

"*Charges for Hydrant Water.*—Private family, $10 per annum, payable half yearly in advance; private family, in houses less than seventeen feet front, $8; boarding-houses, $10 to $50, do.; steam engines, $10 per horse power, do.; baths, $3 per annum, payable in advance; horses, $1 50 do.; carriages, $2 do.; water-closets, $3 do. Hotels, factories, and others, as per agreement with the company.

"All persons using the hydrant water for any of the above purposes, without the knowledge of the company, or permitting their neighbours to use the water, without a written permit from the company, will be charged double the above rates, and the water discontinued. No person will be permitted to introduce the hydrant water for any of the above uses without a written permit from the company; in case of discovery, the water will be stopped, and the connection cut off."

Lead Pipes.—The subject of lead pipes has lately attracted much attention in Boston, where the matter was fully investigated previous to their adoption, in distributing the Cochituate water, recently introduced into that city. The result of the investigations, conducted under the superintendence of Professor Hosford, has re-

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cently been published in the Report of the Water Commissioners, and sets the question, in my opinion, finally at rest. From this report, it appears that no evidence of disease from lead has yet been detected in the cities of London and Paris from the use of the hydrant water, although that material is in universal use in both of these cities as service pipes.

Professor Hare, of Philadelphia, Professor McNaughton, of Albany, and Dr. Brinsmade of Troy, New York, all bear testimony to the same fact, although the lead for service pipes has long been used in each of these towns. Professor Hubbard, of Dartmouth College, states that the village has been supplied for twenty-six years with water conveyed two miles in lead pipes, and that he has never heard of a case of lead poisoning from its use.

Dr. Dana, in an appendix to his translation of the work of M. Tanquerel, on lead diseases, recently published, has furnished a very strong argument against the use of lead pipe, which, in the absence of the positive testimony furnished by the Boston Water Commissioner's Report might go far towards banishing it from use. In his remarks on the specimens of Baltimore and James River pipes, examined by him, he says that he observed slight cribriform erosion, and adds: "But this is evidence that so slight an action could not have been sufficient to produce erosion in a few days. It may be inferred to have gone on for years." Since the appearance of Dr. Dana's work, I have examined numerous specimens of lead pipe, which had been long in use in Baltimore, some, upwards of twenty-five years; and, although I have anxiously sought for some evidence of the slight erosion mentioned in Dr. Dana's work, I have not, in any instance, been able to detect it. I therefore, conclude that the erosion, in the specimen examined by him, was due rather to some original defect in the texture of the metal, than in the action of the water upon it. The interior of the pipe was always found thickly coated with an earthy deposit, which adhered with such tenacity as to require considerable force, and much washing to remove it; and, in my judgment, formed a considerable protection to the water against the action of the lead, admitting its capacity to unite with the water, which did not appear, from any evidence furnished by the pipe itself.

I have met with several cases of disease from lead among workmen engaged in its manufacture since my residence here; but have never observed any lead disease which might be attributable to the use of the hydrant water. Within a few weeks, the pipe of the hydrant attached to my own residence was removed, and its place supplied by a new one at least sixty feet in length, and although

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the water was used soon after, I could not learn that any member of my family experienced the slightest injury from it.

Fires.—From the report of the joint committee of the Common Council, it appears that the organization of the fire department is purely volunteer, that there are seventeen fire companies, embracing in all about four hundred members. No compensation is allowed them for this service; nor exemption from the duties incumbent on all citizens. The city, however, appropriates a small sum annually to enable each of the fire companies to keep its apparatus in order.

The number of fires which have occurred for a few years past are as follows:—

	Alarms.	False.	Chimneys.	Fires.
In 1841 - - -	258	84	36	138
" 1842 - - -	297	86	51	160
" 1843 - - -	302	82	66	154
" 1844 - - -	232	84	22	126
" 1846* - - -	238	76	33	129
" 1847 - - -	385	76	51	258
" 1848 - - -	410	146	41	223

Building and Ventilation.—The municipal authorities are vested with power to regulate the erection of new buildings, which must conform, in materials at least, to the existing city ordinances. The object of these ordinances being to protect from fire, and to prevent the closure of open thoroughfares, they do not attempt to interfere with the peculiar tastes of the landlords who erect them. The houses occupied by the labouring classes usually have a front of sixteen, and a depth of thirty feet, are two or three stories in height, and invariably built of brick. Behind the main building, in most instances, is a back building of the same height, and a yard with a privy and hydrant. These houses are for the most part occupied by one family; but they are sometimes under-let in rooms to poor persons. The system of a number of families occupying the same house, does not prevail to the same extent in Baltimore as in some other places, and is confined to the *very poor.*

Whole streets, however, in the worst parts of the town, are occupied by a wretched population, crowded together in the most unseemly and unhealthy manner.

Stoves for warming are in almost universal use among the labouring population, and the one known by the name of "*ten plate stove,*" which answers for cooking as well as warming, appears

* No report was kept in 1845.

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to be in greatest demand. The fuel consumed by the poor is principally wood. As the winters are usually mild, and liberal provision is made for the gratuitous distribution of fuel to the poor during the cold season, the want of it is not severely felt.

The streets are generally laid out in such a manner as to intersect each other at right angles, and are from thirty to seventy feet in width. There are numerous courts and alleys, however, built up within the squares less than fifteen feet in width, which are very imperfectly ventilated. These narrow alleys, which are unfortunately frequently densely populated with the most improvident and miserable inhabitants, are, in some instances, shut out effectually from ventilation by the erection of a building across the outlet of the alley. There are certain portions of the town, built at an early day for other purposes, which do not answer to the description already given. As an example, in that part bounded by Light and South streets, and extending from the Pratt street basin several squares backwards upon a marshy soil, the streets are very narrow and irregular, and the dilapidated houses, inhabited by numerous families, are filthy and offensive in the highest degree. Fortunately, such localities are not numerous. But why allow them to exist at all? The cupidity of landlords should never be able, in a well-regulated town, to furnish the means of generating pestilence and death; cellars are scarcely ever occupied as sleeping-rooms, and few families live in them altogether.

Ventilation.—But little attention is paid to ventilation, either in private buildings or public edifices, although occasionally instances occur among the recently erected residences of the more wealthy, which are deservedly admired for their beauty, where all the requirements for complete ventilation are present. Every one is aware that constant breathing is necessary to sustain life; but few reflect that nearly thirty thousand respirations take place every twenty-four hours, requiring six hundred cubic feet of air. One of the most prolific sources of mortality in cities, is the vitiation of the atmosphere by crowding large masses of human beings together. Sir James Clark observes, that "If an infant, born in perfect health, and of the healthiest parents, be kept in close rooms in which free ventilation and cleanliness are neglected, a few months will often suffice to induce tuberculous cachexia." It is precisely in those places where destitution is greatest, and mortality highest, that defective ventilation prevails. In addition to exhalations from drains and decomposing refuse, which contaminate the air from without, the poor, in their economy of warmth, close up all the

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avenues in their power by which its ingress or egress is effected. In proportion, also, as the body becomes enfeebled by disease, is it rendered sensitive to currents of air; and hence those whose circumstances enable them to command comforts, are fain to dispense with a sufficient supply of wholesome atmosphere to preserve the integrity of the system. With the view of furnishing a perfect change of atmosphere to sleeping apartments, I have invented a stove, which contains a chamber for heating air, brought from without, and pipes to diffuse it through the apartment. By means of this apparatus, which is exceedingly simple and economical, for introducing air, and a valve to allow the impure air to escape into the flue, at the upper part of the room, the apartment can be kept perfectly ventilated. To a consumptive patient, who requires a fixed temperature, and, at the same time, a change of atmosphere, such an apparatus appears to me invaluable.

Public Squares.—There are several public fountains in different parts of the town, within inclosures of three or four acres in extent; but, with these exceptions, Baltimore is destitute of public squares, nor do the public authorities yet appear to appreciate the advantages incident to their establishment in a large and increasing town. Several holders of vacant lands within the city limits, with a view to enhance the value of their property, have offered public squares to the city. Two of these, Franklin and Union Squares have, after much difficulty on the part of the city authorities, been accepted. In order to demonstrate the little value in which public squares have always been held by the city government, I have but to mention that immediately after the completion of Washington's Monument, which occupies a position in one of the most elevated and fashionable parts of the city, the proprietor of the adjacent lands, which were then vacant, offered the city a public reservation of one hundred acres surrounding the monument in all directions, to be beautified as a public park for a mere nominal sum, which it declined accepting, seeing no advantage that could possibly result from such an appropriation of land within its limits; and this exquisite contribution to architecture, now rears its beautiful and lofty proportions amid a mass of houses instead of the waving elms and towering oaks that once adorned the summit which it crowns, and which would have furnished such an agreeable relief to the monument itself, and have been productive of such vast advantages to the morals and health of the inhabitants of the city.

It is to be hoped that the day is not far distant when Baltimore will appreciate the immense advantages to be derived from public

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parks, and will make provision for their creation and maintenance, on a scale of magnificence commensurate to the wants of its inhabitants. The evil does not reside in the tastes of its population, especially its lower classes, who seek recreation of this sort with avidity whenever it is offered to them. Green Mount Cemetery became so favourite a resort for the citizens of the town, that the proprietors felt themselves obliged (whether wisely or not, I do not pretend to say) to shut their gates against those who sought recreation from their confinement and labours, in the midst of its rich foliage and pleasant shady walks.

Surely those whom Providence has consigned to wearisome labour, in wretched homes, over which disease and mortality hang like a pestilential vapour, have a right to some consideration at the hands of municipal authorities; and with the facts which our tables of mortality present, that one-half of our population die before they have reached their fifth year; and that within the last year, *the number of deaths to the living was as one to thirty-six*, a mortality almost equal to the most unhealthy manufacturing districts in Europe; it would be idle to say that every necessary thing had been done to alleviate the wants of that helpless, but interesting portion of the community. If the fearful miseries entailed by excessive mortality were irreclaimable, it might be prudent to bow our heads to the storm which is wasting its fury upon our poorer population; but it is an indisputable fact, which recent inquiries have fully demonstrated, that these evils are susceptible of almost entire removal, by an expenditure of less money than their existence entails upon the community. The amount contributed to the improvement of general health, and public morals, however large it may be, is only so much taken from the fund which would otherwise be expended in the maintenance of pauperism.

Public Baths and Laundries.—The subject of baths for the poor has not attracted attention in Baltimore, and there are no public establishments of this sort. That they would be of advantage here, as elsewhere, is very evident; indeed, an appendage to a fashionable house is invariably a bath-room; and I am extremely cautious in advising those families, whose professional adviser I am, wherever the means are at hand, to bathe frequently, as one of the most powerful promoters of health. If frequent ablutions are of such importance to those who are surrounded by the appliances of luxury, of how much greater value do they become, to those less favoured in their condition? The labourer or poor mechanic is unable to pay a large sum for a bath, and yet would gladly avail himself of one for himself

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and family, if brought within his reach. The beneficial result of ablutions is strikingly manifested in the practice of lead establishments, where the proprietors require their workmen to wash their hands and face carefully before leaving the workshop. By this simple precaution, they are enabled to make an unhealthy occupation comparatively healthy. That uncleanliness and mental degradation are intimately associated with each other, is now generally admitted; hence, in proportion as the body is kept cleanly, are the moral faculties elevated, and the tendency to commit crime diminished.

Public Schools.—The public schools are placed under the supervision of a board of school commissioners. The number of schools in operation, during the year 1848, appears, by the report of the commissioners, to have been twenty-five, of which eleven were male, and fourteen female schools. One of the male and two of the female are devoted to the higher branches of public instruction, and are termed high schools; the remainder are appropriated to the instruction of the elements, and are termed primary schools. The buildings occupied as public schools usually consist of a main story, and a basement beneath, either on a level with the ground, or more or less sunk beneath the surface. Both of these stories are occupied as school-rooms. The number of scholars in attendance last year was six thousand six hundred and ninety-nine, being about two hundred and sixty pupils to each school. The rooms occupied by these two hundred and sixty pupils, are about forty-five feet long, thirty-five feet wide, and from twelve to fifteen feet in height. They are, with the single exception of the male high school, defective in ventilation, and are universally heated by stoves. In some of the schools, no attempt, whatever, has been paid to improve their ventilation; in others, an effort has been made to remedy the evil by a few holes perforated in the ceiling; but in no instance that I am aware of, has a building been provided with properly constructed flues for the escape of the foul air, and the introduction of pure atmosphere in its stead. The consequence is, that the air, in a very short time, becomes insupportable, and the teachers are obliged to lower the upper sashes of several of the windows, in order to procure a partial relief. It is obvious to any one at all acquainted with the principles of ventilation, that, whilst the currents of cold air, from the windows, expose those near them to disease, they signally fail to effect a change in the atmosphere of the apartment. It may be proper here to remark, that whenever a large quantity of cold air is intro-

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duced into an apartment bearing an elevated temperature, by means of a window, its tendency is to assume a local movement, which prevents its extensive diffusion, unless broken by some mechanical obstruction, which it is the great object of ventilation to promote. I have paid repeated visits to a number of the public schools, and invariably found them loaded with an atmosphere so unpleasant as not only to be sensible to myself, but painfully manifest to the teachers, who universally complained of headache, after two or three hours' confinement. Now, when it is taken into view that an atmosphere, fresh at the commencement, and deteriorated slowly, may not be sensible to the persons confined in it, and that, therefore, the unwholesomeness manifest to the senses of a person newly entered, may not be perceptible to the teacher, it will readily be admitted, that the amount of impurity complained of was neither light nor trifling. From the number of persons crowded together in one apartment, the age of the pupils, and the length of time spent in them, there are no places more liable to a vitiated atmosphere than public schools; and for the reasons just mentioned, there are no places where greater care should be taken to prevent the operations of a cause, which impedes the functions of respiration, relaxes the body, and enervates the mind, so as to render the slightest exertion, either corporeal or mental, tiresome and irksome in the highest degree.

In addition to the schools under the care of the commissioners, the Brothers of the Christian Schools, the Brotherhood of St. Patrick, and McKim's free school, give schooling to about two thousand pupils. The remarks applicable to the public schools will generally apply to them.

Vital Statistics.—In presenting the accompanying tabular statements, I have to remark that the bills of mortality are issued by the Board of Health, and are made upon a weekly inspection of the registers kept by the sextons of the different graveyards. These registers, which contain all the information at the disposal of the Board of Health, are made of such information as the sextons can most readily command, and are, therefore, far from being reliable sources, so far as the particular diseases are concerned. The number of interments is probably accurately stated, and an approximation to age obtained; but beyond this, very much uncertainty prevails.

Table B presents the actual mortality which has taken place in each of the last thirteen years, and exhibits a fluctuation from the

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exceedingly favourable standard of less than one in fifty (1840), to an extremely unfavourable one of one in nearly every thirty-six inhabitants (1848). The table, showing the causes of deaths, exhibits the greatest fluctuation in these years in scarlet fever; the number in 1840 being only 71; and in 1848, 407. An examination of the table, exhibiting the ages at which deaths have taken place, would appear to confirm the correctness of the table of diseases, by showing that the infantile period on which scarlet fever makes its heaviest demands, was really freer from mortality in 1840 than in the years preceding or succeeding it. It would be unsafe, however, to reason upon causes of disease, which were not attested by the medical men in attendance; but even were I to assume the correctness of the causes of death as manifested in table D, there would still be wanting very important elements, in order to make this information practically useful.

From my own observation, independent of the bills of mortality, I am enabled to state, that during the latter part of the year 1847, and the first part of 1848, scarlet fever was not only more prevalent in Baltimore than for a number of years previous, but was marked by a great fatality. Epidemic scarlatina commenced about August 1847, and subsided about May 1848; after that period the number of cases not only diminished very rapidly, but those which did occur, for the most part, yielded easily to medical treatment. In July and August of 1848, cholera infantum, a disease much more dependent upon a vitiation of the atmosphere than is generally supposed, and which is always a terrible disease in our large cities, especially among the poor, appeared to me to be more than usually fatal, and prevailed more extensively among the children of the better class of inhabitants, than I had hitherto observed it.

These tables furnish evidence, however, that Baltimore, in common with the other large cities of the United States, is subject to a much higher rate of mortality than the surrounding country. The reason for this increased mortality becomes, in this connection, a very important sanitary inquiry. That meagreness of diet occasionally induces unhealthiness and mortality in individual instances in our cities may be true; but I apprehend that, as a general rule, while the labouring classes in town perform less severe labour than those in the country, they are supplied with an equal, if not greater, amount of substantial food. One prominent and just cause assigned for this disparity, is the extreme vitiation of the air in cities from a

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great variety of causes. In the performance of the act of respiration, by man and the animals congregated for his use, an immense amount of impurity is constantly being given out to the atmosphere, in addition to which, the products of the innumerable fires and gaseous effluvia from manufactories, seem still further to increase this evil; besides which, even where cleanliness is not entirely overlooked, a large amount of decaying vegetable and animal matter must necessarily be present, loading the air with its noxious gases, so prejudicial to health. Where, by a dense accumulation of improvident persons, such as occurs in the most humble quarters of a populous town, these evils are increased by uncleanliness, and an almost entire want of ventilation, typhoid fever and other diseases are rapidly generated; which not only scourge the quarters in which they emanate, but frequently extend with alarming rapidity from these wretched purlieus of misery to the more wholesome and better ventilated portions of the town. The system of sewerage, for the purpose of removing the refuse of the houses, is unknown in Baltimore. Carts are not sent around for this purpose, and the streets from necessity become the depositaries for much of the offensive matter from the kitchens. The consequence is, that in many of the narrow courts and alleys, rarely visited by the scavengers, the atmosphere is constantly surcharged with the most unpleasant, and not unfrequently noxious effluvia.

Another important element in the production of disease, is a concentration of population among the poor. This can never take place without proportionally increasing the rates of mortality, and it has invariably been found to hold good in those places where the bills of mortality are so kept as to elucidate this inquiry, that high mortality and over-crowded population go hand in hand. Our bills of mortality furnish no means of designating the healthy from the unhealthy parts of the town. But it is no matter of surprise, where buildings and courts, with defective ventilation, surrounded by the effluvia of decomposing matter without sewerage, and crowded by a population subjected to the evils of poverty, exist, that the air should be freighted with pestilence, and life wither prematurely away under these destructive influences.

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TABLE A.

Population of Baltimore, showing the Sex, Age, and Colour of the Inhabitants, as exhibited by the United States Census of 1840.

CLASS OF POPULATION.	Under 5 years.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 and upwards.	Total population.
Whites. Males	6350	4498	3926	4212	8536	5721	2961	1552	764	238	70	10	3	
Whites. Females	6220	4623	4316	5172	9465	5544	3279	2068	1098	389	108	18	6	
Total	12,570	9121	8242	9384	18,001	11,265	6240	3620	1862	627	178	28	9	80,311
	Under 10 years.	10 to 24.	24 to 36.	36 to 55.	55 to 100.	100 and upwards.		Under 10 years.	10 to 24.	24 to 36.	36 to 55.	55 to 100.	100 and upwards.	
Free blacks. Males	2170	1825	1601	1267	369	9	Fem.	2254	3092	2731	1861	738	30	17,980
Slaves. Males	281	505	231	113	35	4	"	364	946	453	206	61		3,212
Total	2451	2330	1832	1400	404	13		2618	4038	3184	2067	799	30	102,513

TABLE B.

BALTIMORE.—*Deaths, Population, and rate per cent. of Mortality for thirteen years,* 1836—1848, *inclusive.**

Year.	Population.	Annual mortality.	Mortality, one to every	Per centage of mortality.
1836	93,919	2192	42.75	2.33
1837	95,266	2518	37.80	2.64
1838	97,547	2476	39.39	2.53
1839	99,985	2260	44.23	2.26
1840	102,513	2045	50.12	1.99
1841	105,087	2247	46.76	2.14
1842	108,233	2477	43.29	2.31
1843	112,021	2333	48.01	2.08
1844	116,501	2665	43.71	2.28
1845	121,161	2896	41.81	2.38
1846	127,219	2996	42.45	2.35
1847	133,579	3414	39.12	2.58
1848	140,457	3861	36.19	2.76

TABLE C.

BALTIMORE.—*Deaths, Population, and Mortality of Coloured Population for nine years,* 1840—1848, *inclusive.**

Year.	Population.	Annual mortality.	Mortality, one to every	Per centage of mortality.
1840	21,192	480	44.15	2.26
1841	21,615	583	37.07	2.69
1842	22,047	641	34.39	2.90
1843	22,487	562	40.01	2.49
1844	22,936	590	38.87	2.59
1845	23,394	676	34.39	2.90
1846	23,861	699	34.02	2.93
1847	24,338	694	35.34	2.82
1848	25,068	840	30.00	3.33

* Exclusive of stillborn.

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TABLE D.

Baltimore.—*Statement of the Causes of Deaths for thirteen years,* 1836—1848, *inclusive.**

	1836.	1837.	1838	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
Abscess - - -	-	2	4	1	2	4	2	4	1	1	1	4	2
Affection of the nerves - -	-	-	-	-	-	-	-	-	-	2	1	-	1
Amputation - -	-	-	-	-	-	-	-	1	-	-	-	1	1
Aneurism - -	1	-	-	-	1	-	1	-	-	-	-	-	-
Apoplexy - -	22	20	25	29	25	19	22	17	23	15	28	22	19
produced by violence -	-	-	-	-	-	-	-	-	-	1	-	-	-
Arthritis - -	-	-	-	-	-	-	-	-	-	-	-	1	2
Asthma - - -	16	4	6	6	8	6	1	1	12	2	3	3	2
Bite of a spider -	1	-	-	-	-	-	1	-	1	1	-	-	-
dog - -	-	-	-	-	-	-	1	-	-	-	-	-	-
Bronchitis - -	-	-	1	-	2	5	4	5	6	5	11	8	8
Burn - - -	11	11	16	11	14	9	7	7	9	13	8	12	17
Cancer - - -	9	9	11	7	10	8	9	12	17	12	20	17	10
Carbuncle - -	-	-	-	-	1	-	-	-	-	-	-	-	-
Carditis - - -	-	-	-	-	-	-	-	1	-	-	-	-	-
Catarrh - - -	-	-	-	-	1	-	-	-	-	-	-	-	-
Casualty - - -	31	28	33	24	20	27	55	21	27	37	37	34	39
Chicken-pox - -	-	4	2	1	3	1	-	-	-	-	1	1	-
Child-bed - -	18	29	28	21	20	31	14	21	29	34	36	35	62
Cholera - - -	-	-	-	-	-	-	-	-	-	1	-	-	-
Cholera infantum -	191	131	199	125	114	194	198	159	129	113	139	249	244
morbus - -	2	-	2	2	1	-	9	8	7	7	4	9	9
Cholic - - -	-	-	-	-	-	-	-	-	1	-	-	-	-
cramp - -	6	9	4	3	7	4	4	10	4	12	8	4	6
bilious - -	3	8	3	4	4	4	1	2	-	5	3	1	6
painter's -	-	1	-	-	-	-	1	2	-	-	-	-	-
Concussion of the brain - - -	-	1	-	-	-	1	-	-	-	-	-	1	2
Congestion of the brain - - -	-	-	-	-	-	3	1	3	-	1	3	2	1
lungs - -	-	-	-	-	-	1	-	1	-	1	-	-	2
bowels - -	-	-	-	1	-	-	-	-	1	-	-	-	-
Constipation - -	-	1	-	-	-	-	-	-	-	-	-	-	-
Consumption - -	316	396	410	397	359	454	480	483	510	523	548	590	620
Contusion - -	2	1	2	1	-	-	-	-	1	-	-	-	-
Convulsions - -	86	85	89	65	55	84	83	57	73	81	73	81	106
Coup de soleil -	-	-	3	-	-	2	-	-	-	1	1	1	2
Croup - - -	47	59	45	51	31	26	42	71	56	80	91	127	165
Death from blows -	2	6	1	-	1	3	1	2	1	1	6	-	-
by lightning -	-	-	-	-	-	-	-	1	-	-	1	-	-
from stabs -	-	5	1	-	1	-	-	2	2	-	3	-	-
violence -	-	-	-	1	2	1	1	1	2	-	-	2	2
Delirium tremens -	-	-	-	-	-	-	-	-	1	-	-	-	-
Diarrhœa - -	2	-	-	1	-	-	2	-	1	-	-	7	15
Disease of the prostate gland - -	-	1	-	-	-	-	-	-	-	-	-	-	-
spine - -	1	3	3	2	8	3	3	9	3	10	8	3	5
throat - -	-	-	-	-	-	-	-	-	3	-	-	4	1
womb - -	-	-	-	-	-	1	1	-	-	1	3	2	1
Dropsy - - -	50	50	63	60	57	49	44	42	58	44	62	72	79
in the head -	34	34	43	26	63	64	47	55	50	46	39	-	-
Drowned - -	25	39	23	35	22	27	26	24	27	34	40	34	31
Dysentery - -	25	39	25	16	27	22	25	22	11	13	7	42	46
bilious - -	-	-	-	-	-	-	-	-	2	-	-	-	-
Dysmenorrhœa -	-	1	-	-	-	-	-	-	-	-	-	-	-
Dyspepsia - -	4	1	3	-	4	3	2	1	3	1	6	9	5
Erysipelas - -	-	-	1	4	-	-	3	5	-	4	14	9	10
Epilepsy - -	-	-	1	-	-	-	-	-	-	-	-	-	-

* The classification is that of the Board of Health, and highly objectionable.

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	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.
Exposure to cold -	5	2	3	3	3	1	2	4	1	3	1	5	1
to heat, and drinking cold water - -	1	-	28	-	-	-	2	-	1	5	9	-	1
Fever, bilious - -	83	32	37	46	49	38	68	38	43	53	70	44	52
catarrhal -	77	74	67	70	44	99	117	110	75	89	104	132	144
congestive -	3	2	6	4	7	10	7	11	4	4	7	1	-
gastric - -	-	3	5	8	10	7	12	17	22	36	25	29	20
inflammatory	-	-	-	-	-	-	-	1	-	-	-	-	-
intermittent -	3	14	3	1	2	4	14	5	3	3	2	3	2
nervous -	-	-	-	-	-	-	-	1	2	2	-	-	4
remittent -	-	-	-	-	-	-	-	2	1	3	-	-	1
scarlet - -	30	134	141	112	71	74	27	56	370	288	132	166	407
typhus - -	41	14	33	20	13	18	19	8	19	17	20	29	76
ship - -	-	-	-	-	-	-	-	-	-	-	-	106	7
Fracture - -	-	1	-	-	-	-	-	-	-	-	-	-	-
Gout - - -	-	2	-	-	-	2	2	2	1	1	2	1	-
Gravel - - -	1	2	3	4	3	1	3	2	3	5	1	-	-
Hemorrhage - -	9	4	10	5	13	11	4	14	6	8	10	8	14
Hernia - - -	-	-	-	-	-	-	-	-	1	-	1	1	3
Hip complaint -	-	-	1	1	-	1	2	-	-	1	-	-	1
Hives - - -	-	1	-	-	-	-	-	-	-	-	-	-	-
Hooping-cough -	43	69	18	75	9	35	63	20	59	62	26	104	59
Hydrarthosis - -	-	-	-	-	-	-	-	-	1	-	-		-
Hydrocephalus -	-	-	-	-	-	-	-	-	-	1	21	70	79
Hydrophobia - -	1	2	-	-	-	-	-	-	1	-	-	-	2
Hysteritis - -	-	-	-	2	-	-	-	-	-	-	-	-	-
Inflammation - -	3	1	2	-	1	1	1	-	-	-	-	1	3
of the bladder	1	1	-	1	-	1	-	-	-	1	1	4	-
bowels - -	15	10	14	20	21	23	36	46	37	34	51	60	67
brain - -	19	38	25	35	18	27	23	34	34	46	64	89	83
breast - -	-	-	-	-	-	-	-	1	10	3	2	-	-
kidneys - -	1	2	-	2	-	1	2	1	-	1	1	2	2
liver - -	-	1	-	-	-	-	1	2	2	-	-	13	8
lungs - -	8	8	9	10	9	7	10	14	21	11	8	20	22
stomach -	3	3	3	2	1	1	3	4	6	2	-	3	2
throat - -	3	-	2	3	1	2	-	1	-	5	1	4	2
uterus - -	-	-	-	-	-	-	-	-	-	1	-	-	-
Infanticide - -	1	-	2	1	-	1	1	2	4	3	2	1	1
Influenza - -	-	-	-	-	-	-	-	9	-	1	-	-	-
Intemperance -	50	35	47	30	35	29	18	15	10	20	16	16	23
Jaundice - -	6	2	3	2	1	1	4	3	5	-	1	1	5
Liver complaint -	18	13	13	10	11	7	13	6	13	13	16	-	-
Lock-jaw - -	4	3	2	3	1	1	5	4	3	1	3	-	-
Mania - - -	3	7	6	-	5	3	6	8	9	2	12	15	9
à potu - -	-	-	-	-	-	-	-	-	-	3	3	4	6
Marasmus - -	27	32	30	18	3	5	5	2	-	1	-	-	-
Measles - - -	1	141	4	57	32	6	103	4	1	20	114	7	74
Mortification - -	3	10	3	5	3	6	2	8	5	3	7	5	6
Mumps - - -	-	-	1	-	-	2	-	-	-	-	1	-	1
Murder - - -	-	-	1	-	-	-	-	-	1	1	-	-	-
Neuralgia - -	-	-	-	-	-	-	1	-	-	-	-	3	1
Old age - - -	137	93	94	118	96	94	98	120	93	97	129	144	156
Ophthalmia - -	-	-	-	1	-	-	-	-	-	-	-	-	-
Organic disease of the heart -	6	7	4	5	20	17	27	19	30	39	47	30	29
Palsy - - -	13	12	18	12	24	13	1	21	21	17	10	35	34
Paralysis - -	-	-	-	-	-	-	-	-	-	11	6	-	-
Piles - - -	1	-	-	-	-	-	-	-	-	-	-	-	-
Phthisic - - -	-	-	-	-	-	-	-	-	-	2	-	-	-
Pleurisy - - -	74	66	50	55	47	38	66	86	54	26	18	32	50
bilious - -	-	-	-	-	-	-	-	1	8	23	17	-	-
Poison - - -	2	1	-	1	2	-	2	4	-	3	4	2	1
Pneumonia - -	-	-	-	-	-	-	-	1	-	2	1	31	39
Quinsy - - -	1	7	5	1	1	1	1	2	1	2	-	-	-
Rheumatism - -	-	5	2	4	7	6	9	3	5	-	-	5	4
inflammatory -	2	-	3	2	2	-	1	4	1	6	4	2	1

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	1836.	1837	1838	1839	1840.	1841.	1842.	1843.	1844.	1845.	1846	1847	1848
Rupture - - -	2	-	-	-	2	1	2	1	-	-	-	-	-
Scald - - -	3	4	-	1	2	1	-	1	1	-	-	-	-
Scirrhus of the stomach - - -	1	-	-	-	-	-	-	-	-	-	-	-	-
Scrofula - - -	2	12	11	3	8	5	4	3	2	5	3	3	8
Small-pox - -	1	52	71	2	9	1	1	-	-	110	115	1	5
Spasms - - -	6	5	-	3	-	-	1	1	-	-	-	-	-
Spleen - - -	-	-	-	-	2	-	-	1	-	-	-	-	-
Stillborn - -	181	196	215	171	191	201	178	187	214	211	257	381	372
Sting of a wasp -	-	-	-	1	-	-	-	-	-	-	-	-	-
Stone - - -	-	-	-	-	1	-	-	-	-	-	-	-	-
Strangulation - -	-	-	-	-	-	-	-	2	1	-	-	-	1
St. Vitus' dance -	-	1	-	1	-	-	1	-	-	-	-	-	-
Sudden - - -	32	22	21	26	27	25	14	19	13	1	6	17	20
Suicide - - -	10	5	6	3	7	3	5	1	5	6	4	3	5
Syphilis - - -	1	-	-	1	-	-	-	-	-	-	-	-	1
Teething - -	16	28	21	15	21	28	29	29	16	19	42	69	92
Thrush - - -	3	6	6	5	3	6	4	6	2	-	5	7	7
Tic douloureux -	-	-	-	-	-	-	-	-	1	-	-	-	-
Tumour - - -	2	-	4	1	5	1	2	3	8	3	9	1	8
fungous -	-	1	-	-	-	-	-	-	-	-	-	-	1
Ulcer - - -	1	-	-	2	-	1	-	-	1	-	-	-	-
Ulcerated sore throat	1	1	5	3	7	1	1	2	1	1	4	2	1
Ulceration of the bowels - -	-	-	-	-	-	-	-	-	-	1	1	-	-
Unknown, adult, -	16	13	30	20	46	29	25	47	82	85	87	96	178
infantile -	478	516	535	515	468	487	490	446	466	575	533	587	489
Varioloid - -	-	1	1	-	2	-	-	-	-	-	-	1	1
White swelling -	-	-	-	-	-	-	-	-	1	-	-	-	-
Worms - - -	13	18	20	15	4	8	3	5	7	7	12	6	14

TABLE E.

BALTIMORE.—*The Ages at which Death has taken place for thirteen years*, 1836—1848, *inclusive* (*Stillborn not enumerated*).

Year.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 21.	21 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90	90 to 100.	Over 100.	Total.
1836	584	180	208	78	109	203	227	191	147	124	81	41	11	8	2192
1837	630	275	324	148	172	217	250	162	103	115	80	35	6	1	2518
1838	655	256	246	125	154	238	276	188	124	98	61	44	8	3	2376
1839	612	257	266	99	112	189	220	148	116	97	88	45	9	2	2260
1840	532	182	183	93	123	205	226	166	126	82	76	44	5	2	2045
1841	651	217	208	82	123	214	231	165	120	107	73	45	8	3	2448
1842	666	315	263	106	157	225	121	191	109	93	46	49	10	6	2454
1843	682	229	153	91	138	251	234	166	112	132	94	42	9	2	2333
1844	630	285	363	158	161	212	262	222	126	110	72	42	13	9	2665
1845	830	208	351	149	155	282	305	228	144	115	71	37	14	6	2896
1846	786	287	320	167	200	263	305	232	135	129	94	59	15	3	2994
1847	866	420	376	173	151	320	343	259	176	124	133	57	12	4	3414
1848	959	471	508	220	207	352	349	261	174	152	128	57	17	6	3861

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H.—8.

Report on the Sanitary Condition of Charleston, South Carolina.
By P. C. Gaillard, M. D.

Dr. James Wynne,
Chairman of Hygiene Committee of American Medical Association,

Sir: As a member of the Committee on Hygiene, it is my duty to furnish such information as I have been able to collect, relative to the city of Charleston. The materials for a report on the hygiene of this city are, however, by no means abundant; and much of the information, with which I have been furnished, is deficient in detail, and lacks precision. Under the direction of our city council, measures are now in progress for gathering up all the important statistics relating to the population, health, mortality, trade, &c., of the city; and should the results be made known sufficiently early to be of service to you in preparing your general report, they shall be forwarded to you. I will now proceed to reply to the interrogatories contained in your circular of May 1848, in the order in which they there occur.

"1. What is the population of the town, and its position in relation to the surrounding country, the nature of its surface and subsoil, the means of, or impediments to drainage, more especially within the town limits?"

In 1840, by the census of the United States, Charleston contained a population of 29,261, of which 14,788 were white, 14,473 black and coloured. The suburbs contained at the same time a population of 11,876; but as these are not within the corporate limits, are not governed by the city laws, keep no bills of mortality, and have little or no medical police, they will not be included in this report.

The city is situated on a narrow neck or tongue of land, between Cooper River on the east, and Ashley River on the west, in lat. 32° 46′, long. 79° 57′. Cooper River is rather more than a mile wide, and beyond it are extensive salt marshes, over which every tide flows, and which are covered with a luxuriant growth of salt-marsh grass—the *spartina glabra.* Ashley River, on the west, is not so

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wide, and the marshes, on its further shore, are less deep. Along its margins, on the city side, considerable salt marshes still exist—there are none such along the margins of Cooper River within the city limits. The two rivers unite at the point of the peninsula on which the city is situated, and below, widen out to form the bay. They discharge their waters into the ocean, seven miles below their point of confluence. Towards the north, the city is directly contiguous to the suburbs; and beyond the latter, the country is flat and sandy.

A great part of the city has been built upon reclaimed marshes, and the beds of creeks and ponds, which have been filled up.

The geological structure of the soil is alluvial. The surface consists of yellow or gray sand, resting on a stratum of red, ochrous clay, under which white or gray sands again occur. The depth of this alluvium is about twenty feet, and the water of our wells is derived from it. Under the alluvium, blue mud and sand are found, containing the characteristic shells of the post pliocene formation, the newest of the tertiary; and below the post pliocene, the eocene or lower tertiary beds are met with of great thickness, and composed principally of marl. The influence of this arrangement on the drainage of the city, is explained in the following extract from a very interesting monograph, on the Geology of Charleston, by Mr. F. S. Holmes, to which I am indebted also for the information given above.

"The natural drainage of the city, as affected by its geological structure, is next worthy of our notice. The waters percolating from the surface, I have already said, are obstructed in their downward course by the blue mud of the post pliocene bed; while their escape, in a lateral direction, is prevented by the clay deposited along the sides of the above-described creeks. In rainy seasons, all the water that is not carried off by the surface drains, is retained to the depth of about eighteen feet, and the earth becomes completely saturated by it; the present sewers admitting little or no water, except through the gratings from the streets. Hence, it appears that the wells of the city are its principal vents or drains, and that the quantity of water consumed daily by the citizens from these wells, will be the measure of the drainage."

"2. What is the character of the town in reference to health? What is the condition of its most unhealthy and crowded parts where disease is supposed to be most prevalent, and to what causes are such diseases mainly attributable?"

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The character of Charleston in reference to health is very fair. From a report, by the City Register, of the interments for the eighteen years from 1828 to 1846, it appears that the annual proportionate mortality averaged 1 in 44.11; whereas, for the last eight years, the average has been but 1 in 52. The causes of this difference are obvious. In 1836, epidemic cholera prevailed here, and carried off 392 persons, increasing the mortality that year to 1 in 25.84. In 1838, in the month of May, a dreadful conflagration laid one-third of the city in ashes. By this, vaults and cellars containing offensive and decomposing matters, were exposed to the rays of the summer sun; and yellow fever, the most severe which we have had during the present century, made its appearance, victims being abundantly furnished for its ravages in the numerous Irish and other labourers who flocked here to aid in rebuilding the burnt district. The disease also prevailed to a less extent in 1839. The mortality for 1838 was 1 in 25.05; and in 1839, 1 in 35.38. These disastrous years of course increased the ratio of deaths for the series of years to which we are at present alluding. "But since the rebuilding of the city," says the City Register, in a letter to me, "we have had no epidemic of yellow fever (a period of eight years), and the average mortality has been 1 in 52. By the efficient system of drainage now existing, and the activity of the Board of Health in reporting all nuisances likely to injure the public health, I am satisfied that our city does, and will continue to enjoy as great a share of health as any other maritime city in our widely extended Union."

The most beneficial effects appear, indeed, to have resulted from the system of grading and draining the streets which has been adopted. Many of the practitioners of our city are also impressed with the belief that the shells with which many of our streets have been covered, have contributed something to the improvement of the health of those quarters; and, when we reflect on the influence which lime is said to possess as a disinfectant; when we remember that a considerable portion of country about Leith is said to have been rendered salubrious, and fevers of a malarious nature to have been extirpated by the use of lime, we can readily allow some influence to this cause. Our exemption from yellow fever of late years is not, however, to be taken as a positive proof of this. In the history of this disease in our city, the following curious facts have been observed, and are recorded in the books of the Medical Society of S. C. In the year 1791, yellow fever reappeared in the city, after an absence of thirty-seven years, or from 1755, and prevailed more

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or less violently almost every year after until 1807. From 1807 to 1817 *there was no epidemic yellow fever* in Charleston. But in 1817 it again appeared, and was very severe, and again it prevailed in 1819, '24, '27, '28, '34, '35, '38, and '39, since which, as already stated, with the exception of a few cases in 1840, and one or two in 1843, our city has been entirely exempt from the disease. That the health of the city has been improved by the system of drainage, &c., adopted, and by the general vigilance of the proper authorities, I entertain no doubt, but sufficient time has not yet elapsed to enable me to state it as a proved fact.

The most crowded parts of the city are Market street and neighbourhood, State street, Elliott street, and the eastern end of Tradd street, all the streets enumerated being on the eastern, or commercial side of the city. In these situations, the houses are generally built in blocks, and have very small yards, which are the most filthy of the city. These are the localities of sailors' boarding-houses, and their concomitant houses of prostitution, and of the lodging-houses for the poorer classes generally. It is here, therefore, that we should expect to find all the elements of disease, and accordingly it is here that yellow fever first appears, and rages most violently.

It may be asserted that with us yellow fever has constituted the test of the healthiness of the different quarters of the city proper, as typhus does of more northern sites. As just remarked, yellow fever invariably appears in the city first, in or near one of the localities mentioned, and to whatever cause the origin of the disease may be attributed, it there continues to rage with most violence. "During all epidemics of yellow fever," says the City Register, in the letter already quoted, "the large majority of patients were from Elliott, Tradd, Market, and State streets, which streets are the most closely built up, and worst ventilated of any in the city. But at the same time, these streets are occupied almost exclusively by that class of people most liable to the disease, viz., sailors, and strangers of the lower orders, given to drunkenness, &c. In ordinary years, these streets are as free from disease as any others in the city. Upon the whole, I would say that there is no one locality of the city more liable to disease than another, except the above-mentioned streets, and they only when yellow fever prevails as an epidemic."

You will have remarked that the localities just spoken of are not only the most crowded, most badly ventilated and filthy, but are also the chief, almost the only resort of sailors. This leads me here, to consider your suggestion regarding quarantine laws, in relation to

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diseases peculiar to our geographical position. The only disease which can come up in this connection, is that of which I have already spoken—yellow fever. The question has often been agitated here, as to whether the disease may not sometimes be imported, and afterwards spread among the unacclimated inhabitants. With us, as elsewhere, this has been the subject of much controversy; the opinion of the profession generally, however, is very decided against the idea of importation, which would involve in some measure the idea of contagion. Others, although few in number, have not been wanting, who have maintained the opposite ground. Among these I may mention, Prof. Dickson, late of the Medical College of South Carolina, now of the University of New York, and Dr. B. B. Strobel. The latter has published a volume to prove the transmissibility of yellow fever, in which he contends that, when the atmosphere of a place is in a state to produce some form of febrile disease, the arrival of a vessel from a port where yellow fever is prevailing, may so infect the atmosphere, as to generate that peculiar form of fever; this peculiar state of the atmosphere being wanting, the poison will be harmless. To sustain this point, many facts in the history of yellow fever, familiar to the profession, are adduced; and Dr. S. endeavours further to prove that the fever which prevailed in this city in 1839, was imported by vessels from the West Indies. This he does by showing that the first cases occurred in the immediate neighbourhood of such vessels, that the disease was carried into lodging-houses in Market street, and subsequently extended among persons in that neighbourhood.

The recent case of the Eclair steamer, and the appearance of yellow fever at Boâ-Vista, is so strong and positive, that, when added to that of the ship Baum, and the importation into, and spread of the disease, in the island of Ascension; the communication of the disease by the French ship Palinure to her English prize, the Carnation; and from their French prizes to the British ships Thetis and Hussar, there is little doubt that infected vessels may transmit the disease to other persons and localities, under peculiar circumstances. What these circumstances are precisely, it is impossible to say; but the previous existence of a high range of the thermometer, combined with unfavourable hygienic conditions, such as those stated to exist in the part of our city where the disease first appears, and rages most violently, are probably the most important. The inference I would deduce from these remarks, in relation to quarantine, is clear, viz., that, during the great heats of summer, vessels from ports where

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yellow fever is prevailing, especially if they have, or have had cases of the disease on board, should be subjected to quarantine, be thoroughly cleansed, ventilated, and whitewashed; that the cargo and effects of passengers and crew be opened, aired, &c., and that no case of the disease be introduced into the city. By proper hygienic precautions, however, within the city, by removing the states which favour the spread of the disease, and which are antecedents necessary to its extension, its importation may be prevented and its course arrested.

The malarial fevers (intermittent and remittent) are by no means as common in Charleston as they formerly were. I here speak in reference to the city proper—they still prevail in the suburbs. Remittent fever, generally of a mild form, is sometimes observed to originate in the city; intermittents are more rare. The cases of death recorded in our bills of mortality from these fevers are, almost without exception, of persons who contracted them in the neighbouring country; and hence, they are often reported as *country* fever, from the place where they were contracted. The salt marshes along the western border of the city, do not seem to have any deleterious agency in giving rise to these forms of disease. It is worthy of remark, that in the years when yellow fever prevailed, there was no uniform increase in the deaths by the malarious fevers. But the reports of the City Register show that there *was* a remarkable increase in the number of deaths by typhus in the years 1838, '39, and '40; years in which yellow fever prevailed, in the two former extensively. The mortality from this cause, for the two years immediately preceding 1838, was eight for each year; whereas, in '38, it was twenty-four; in '39, twenty-five; and in '40, twenty-one; and since the last date, there has been a gradual diminution in the number of deaths by typhus; so that in '46 there were but ten, and in '47, but seven deaths from this cause. It was, for some time, thought that typhus and typhoid fevers were taking the place of the malarious fevers among us. If, however, such a tendency did for a time exist, it has passed away; and, although there has of late been no remarkable increase in the number of cases of remittent and intermittent fevers, their antagonistic diseases have certainly not shown any tendency to increase.

The bills of mortality are made up principally from the returns of the sextons of the different burial-grounds; who are required, before interring a body, to have the certificate of the physician who attended, stating the name, age, and disease of the deceased. The

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accuracy of the bills is not altogether to be relied on. In looking over them, one cannot avoid being struck with the great faultiness of the nomenclature which they exhibit. It is to be hoped that the nomenclature of diseases, recommended by the Association, will hereafter be adopted not only here but throughout the United States. A few examples will suffice to show the defect alluded to. Under the head of fever, we find, among others, the following: bilious, country, strangers', remittent, intermittent, and congestive. I do not doubt, that persons at a distance are sorely perplexed with some of these names. Now, one name, remittent, would have sufficed for bilious, remittent, and country, for they are the same; the last being so called because contracted in the country. Again, strangers' fever means yellow fever, and this name is given because strangers are the subjects it attacks. Many other defects might be noticed, but most of them have already been pointed out in the Report of the Committee on a Nomenclature of Diseases, &c., presented to the Convention in 1847.

"3. What are the arrangements for drainage? Is there a public survey of levels? Are the streets and alleys laid out with a proper inclination for surface drainage, or are they defective in these particulars? Is the drainage effected by sewers or surface drainage? And is the mode adopted effective?"

Most of these points will be answered by the following extract, from a letter addressed to me by his Honour the Mayor of the city: "The city is drained by means of subsoil brick drains, running through the centre of the streets from river to river. In those streets that are graded (convex in the middle, and either macadamized, paved with round stones, or unpaved), there are surface drains running parallel with the side walks, with grate openings, which communicate with small brick diagonal drains running to the main central drain. From the lots on either side of the streets, small subterranean drains likewise connect with the central drains, thus draining both streets and yards. This system of drainage has been adopted within the last twelve years, with marked improvement to the health of the city. The mode is effective. Many parts of the city are still imperfectly drained."

The mode of drainage, described in the above extract, is doubtless efficient, so far as it has been carried out; but, unfortunately, one-half of the streets are still in a bad state as regards drainage. These have also central drains, but the streets are concave, have no surface drains at the sides; and the water which falls, in part finds

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its way into the drains through grates at long intervals in the centre of the streets, and in part, owing to the inequalities of the surface, lies for days on the surface until it is evaporated, or is absorbed by the soil. This state of things is, however, gradually being corrected; and, within the last few years, attention having been more especially directed to the subject of hygiene, more progress has been made than for a much longer term of years previously.

"4. What is the mode and expense of cleansing the streets? Are the courts and alleys occupied by the poor cleaned, and how often? Where is the refuse from the houses deposited, and where is the street manure kept, and how disposed of?"

This will also be sufficiently answered by the following extract from the letter just quoted: "Residents are required by law to sweep their yards and in front of their houses daily (Sundays excepted), and to deposit the sweepings and offal near the curb-stone, in front of their dwellings, before 9 o'clock A. M., from whence they are removed by carts employed by the Superintendent of Streets daily, the work to be done throughout the city at or before 1 o'clock P. M. The offal is deposited, during the summer months, at some point remote from habitation; and in winter, it is used for filling up low streets and marsh lands owned by the city, to be afterwards covered with earth.

"The city is divided into two *divisions*, the upper and lower; for each of which there is a superintendent, who is bound to provide six carts, horses, and labourers, and who is responsible for keeping clean the streets, under the direction of the mayor. Each superintendent is elected by the City Council, and each receives a salary of $2800 per annum."

It may be stated further, that, in order to insure the removal of offal, and to keep yards, &c., in a proper state, the Board of Health have the power to make domiciliary visits, and to order any offensive matters removed. They may, also, when necessary for insuring the proper drainage of lots, direct those which are so low as to hold water to be filled up, and proper drains constructed for carrying off the water. Should the owners of such lots fail to comply with these directions within a specified time, the work is done by the city, and the cost charged to them (the owners of lots). In this manner, when the Board is active, as they always are on the approach of summer, or when the visitation of such an affection as cholera is apprehended, a thorough cleansing of all the lots of the city is insured.

5. The condition of the more densely populated parts of the city

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has already been mentioned. The streets are generally of sufficient width, and there are few alleys, and still fewer courts built up and closed at the end. The houses of the poor are either small wooden buildings, occupied by but one family, or they inhabit larger houses in the vicinity of East Bay, in which case many families reside in one house. Recently, ranges of comfortable two story tenements have been constructed of brick in different parts of the city, and many families of the poor reside in such; each family occupying a tenement consisting of a room below and one above stairs. These are the best residences for the poorest classes which we have. The houses are ventilated by means of windows, and generally there is no deficiency in this respect, except in the cases alluded to in the earlier part of this Report. The houses are warmed by wood or coal fires, generally in open fireplaces. Stoves are comparatively rare.

6. In relation to public schools, the chairman of the commissioners, the Rev. C. Hanckel, has kindly furnished the following information: "The system of our free schools in the city is like that of our private schools, with the exception that the instruction of the pupils is confined to a simple elementary English education, embracing spelling, reading, writing, arithmetic, history, geography, grammar, and natural history; and that our schools are held morning and evening (afternoon), with the usual interval of recreation from 12 to 3 o'clock.

"Its influence on the health of the children is, doubtless, beneficial; the confinement being too short to fatigue, and sufficiently long to restrain them from exposure by strolling through the streets, or loitering about places dangerous to health or morals.

"Children are admitted at all ages; but principally between six and nine years, and remain in the schools from one to fourteen years—upon an average, about five years.

"The school-rooms are of a moderate size (being hired by the teachers at their own expense), barely sufficient to accommodate the pupils, the number of whom in each school is about one hundred. The legislature has, at its last session, authorized the commissioners to raise a fund out of the general taxes for the purpose of erecting suitable school-rooms.

"Time allotted to instruction six hours (from 8 to 12 M., and from 3 to 5 P. M.) a day—Saturdays and Sundays excepted. For exercise in the open air—the intervals between school hours.

"Vacations—two weeks in April and December. Holidays—Fourth of July and Thanksgiving days."

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7. There are two hospitals—the Marine and the Almshouse Hospitals—the former, confined to sailors; the latter, open to all indigent sick white persons. The latter is defective in many respects, and a good general hospital is much needed here. There is, also, a dispensary, with two physicians, who visit such of the poor at their domicils as require medical aid.

8. *Water.*—The supply of water for drinking is from cisterns, of which there are a few large public ones; but private residences are often provided with them. In some localities, the well or pump water is potable; but it is generally used only for cooking, washing, &c.

From the geological structure of the country, it is thought that pure water may be obtained from the stratum of sand, underlying the tertiary strata, by means of Artesian wells. The corporation have, in consequence, employed a competent person for the purpose of boring an Artesian well, and the work is now in progress with every prospect of success. A depth of 431 feet has been reached, and the water already rises to within one foot of the surface. The water-bearing stratum is supposed by Mr. Tuomey, late State Geologist, to lie under the burr-stone formation of the tertiary, at a depth of about 650 feet.

I have thus, to the best of my power and knowledge, given the information required by the committee, and only regret that it is not more satisfactory. I would conclude with the following brief summary:—

1. From its almost insulated position, Charleston is little liable to the malarious diseases which prevail in the neighbourhood, and in all the lower part of South Carolina—the pine ridges excepted.

2. That the character of the city for health is very fair, and has improved much of late years. That this improvement is to be attributed mainly to the improved condition of the streets, to their being paved (and possibly to the lime of the shells with which some of them are covered) and well drained, and to the greater attention to the cleanliness of lots, yards, &c. That the most filthy and crowded parts are the most unhealthy, and that it is there that yellow fever first occurs, when it occurs at all, and prevails most severely. That there has been no epidemic of this disease for eight years; that its cause is somewhat uncertain—it being by some regarded as always of endemic origin, and by others, as sometimes introduced from abroad.

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3. That the drainage of the city is as yet very imperfect—many parts being in this respect in a bad state. So far as the system now pursued has been carried, it has proved very effective, and it is being every day extended. This system consists of subterranean drains in the centre, and surface drains at the sides of the streets, the latter communicating with the former by small subterranean drains, the streets being convex.

4. The streets are cleaned daily, and the offal from the houses is removed every day.

The other points are answered so briefly, that it is needless to give a summary of them; and I will now submit this very imperfect report to your kind indulgence and consideration.

I remain, very respectfully,

P. C. GAILLARD, M.D.

CHARLESTON, S. C., *January* 1849.

I herewith send a letter from the chairman of the Board of Health relative to the medical police of the city, which has just been received—too late to be introduced into the body of the report.

P. C. G.

January 27th.

CHARLESTON, *January 25th*, 1849.

To DR. P. C. GAILLARD.

MY DEAR DOCTOR: You addressed to me certain inquiries of the Committee on Hygiene (of the United States Medical Association), of which you are a member, especially as regards the system of medical police. Our system, as of all other well-regulated cities, is twofold: one, external; the other, internal.

1. Of the *external.* It is required of the pilots at all seasons of the year, if sickness is on board (and they are under heavy penalty for neglect), to bring the vessel to quarantine ground to be examined by the port physician. The object of this is to prevent the introduction of small-pox. In some instances, cases have occurred which were well on arrival, but broke out afterwards in the city. Of this, the port physician has been informed by the physician attending on the person where the patient resides. The patient is, if practicable, removed to the Lazaretto, or all available means used to isolate him, and prevent the extension of the disease. An inspection of our bills of mortality, and general diseases, as reported by the City Register, will show how long we have been exempt from small-pox

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from this system, for it must be understood that every winter there are cases of small-pox at the Lazaretto. In summer, all vessels coming from more southern latitudes and the West India Islands, are brought to quarantine and inspected. At any season of the year, when an epidemic of a supposed contagious disease occurs, all vessels from the port where the epidemic prevails are subjected to quarantine. Thus far, then, for external medical police. I do not enter into the long agitated disputations concerning the contagious or non-contagious character of certain diseases. We act in all these cases where there is a doubt, exactly as if they were contagious.

2. I will now proceed to the *internal* medical police. The Board of Health consists of eighteen members elected by the City Council, and a medical committee composed of medical officers of the city institutions and port physician, a State officer, of which the City Register is ex officio chairman, and the two elect a chairman of the whole Board. The duties of the members elect of the Board are, to inspect the various lots, and direct that all nuisances be removed therefrom. But in cases where cellars or lots which contain water require to be made water-tight or drained, then a Board of Inspection is convened, which consists of the mayor of the city and four members of the Board of Health, whose decision is confirmed always by council, and promptly put into execution. It is the duty of the Medical Committee to be the medical advisers of the Board; and of the City Register, who is chairman ex officio and clerk of the General Board, to keep the meteorological observations, the bills of mortality, births, and marriages, as far as practicable, and see that nuisances are removed from premises. The system of our Board of Health, which has been thoroughly organized since 1840, has worked so well as to have enabled that body to act with energy and efficiency in removing everything deemed likely to produce or aggravate epidemic disease; and our annual bills of mortality will show the diminution of mortality, and likewise, that we have not had yellow fever prevailing among us since 1839. In 1838 and '39, there were abundant causes for the existence and prevalence of yellow fever. One-third of the city was burnt in the spring of 1838, causing the exposure of an immense surface, leaving cellars and vast masses of burnt up materials exposed to the rain and sun, and which could not easily be removed; add to this, a great number of artisans, from the North and elsewhere, came to Charleston (as labourers of that kind were in demand) to rebuild the city; and these, from want of houses, crowded together, and badly accommodated. From

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the statement, it will be perceived that it would have been wonderful, with these predisposing and exciting causes, should yellow fever not have occurred in these years. A circumstance worthy of consideration is that, in 1838, of 354 cases of yellow fever, 340 were strangers, and only 14 natives, under 14 years of age. In 1839, of 134 cases, 124 were strangers and only 8 children under 14—strongly evincing how the acclimated are protected, and the real causes of the disease in 1838 and '39.

I will now give you a statement of the plan of internal medical police. 1st. Cellars are required to be filled up or kept perfectly dry. This we regard as of great importance in our damp and low locality; and no cellars are allowed in houses to be built. 2d. All lots, except tide-lots, where the salt water ebbs and flows, are required to be thoroughly drained, or, if too low to be drained, then to be filled up. 3d. Our streets generally have subterraneous drains, into which the smaller drains from the various lots open; and in the main-drain, grates in the centre of the streets were placed. Much evil was occasioned by this arrangement, for much of the earth of the streets was thus thrown into the drains, choking them up and causing the water after heavy rains to remain in the street, and likewise regurgitating upon the lots, they not having free vent, and, above all, an accumulation of filth in the drains which caused much expense to cleanse, and exposed an immense mass of foul material, stagnant in the drains, to the external surface. A new system since 1840, from whence we date the improvement of Charleston, has taken place, viz., to convex the streets either with stone or some other hard materials, and to construct drains at either side of the streets, by which a rush of water passes into the main drains without solid refuse, cleansing and purifying them; this system is progressively advancing. 4th. All offals are daily removed, by the superintendent of streets, from the respective residences. Efforts have been made to induce the citizens to have their cemeteries beyond the city; but the strong associations connected with the family burial-grounds in the churches rendered it impracticable to use any than recommendatory measures, which have proved unavailing. But an ordinance was passed by council in 1836, forbidding burial-grounds hereafter to be established in our city. The Second Baptist Church, in contravention of this law, buried some dead in the yard connected with their church; it became a matter of litigation, the discussion of which is still pending.

We have regarded these measures as highly important in medical

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police, and the plan will, doubtless, be progressively prosecuted, and I really think it has much to do with the continuance for years of health in our city. The authorities are attending, as you know, to another point—a plentiful supply of pure water, so important to the health of the city. I have thus, my dear doctor, given you a succinct view of our medical police; you being in possession of our official documents.

I am, with much esteem,

THOMAS Y. SIMONS, M.D.,

Chairman of Board of Health and Port Physician.

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H.—9.

Sanitary Report of New Orleans, La. By EDWARD H. BARTON, M. D.

NEW ORLEANS is situated in latitude 29° 57′ 30″ N., and longitude 13° 9′ W. from Washington, on the alluvion banks of the Mississippi (the longest and swiftest river, susceptible of more extensive navigation, and draining a larger surface of country, than any on earth), and about one hundred and ten miles from its mouth, by the meandering course of the stream, and about ninety in a geographical line. It is protected from inundation by the great stream that glides by its front, at the rate of four and a half miles per hour in the thread of the current, during high water, and four and a quarter miles at low water, by a levee or embankment, about nine feet higher than it is a few squares back; and the city descends by a gentle slope to the swamps and draining canals in the rear, commencing about ——— distant from the levee, where the surface of the swamp is ———— feet below high water mark; but which is now kept several feet (four to five) above water mark, by the Draining Company; all of which will clearly appear by reference to the line of levels annexed (*vide* Appendix A), from the river through the centre of the city to the Bayou St. John.

The geological formation of the soil on which the city is built, is alluvial; the surface and subsoil, to a great extent, being composed of the deposits of the river. In some places, beds of pure white sand occur, at a depth of six to ten feet, showing the former positions occupied by the waters of the gulf. The height of the ground on the river bank is about fourteen feet above the level of ordinary water in the gulf. The river usually commences its rise about the last of November, attains its maximum elevation in March, remaining thus until the latter part of May, then falls more rapidly than it arose, till about the latter part of September, and remains stationary until the autumnal rise.

The city occupies a front on the river of about five miles, by an average breadth of about three-quarters of a mile. It is bounded

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on the north by a cypress swamp, of about five miles in breadth, where it reaches Lake Pontchartrain, a large body of water extending due north about twenty-five miles, and east and west from its centre about twenty miles. The Mississippi River runs south of east from New Orleans about twelve miles, and the balance of its course south-east to the Balize. It is bounded to the east by plantations and swamps covered with forest, to Lake Borgne, an arm of the sea fifteen miles distant, of about fifteen miles of irregular diameter. On the south, it is bounded by the Mississippi River, across which are cleared land, and swamps covered with forest growth, to Lake Ouacha (a body of water, about five miles wide, and eighteen long, extending to the south-west, and thence to the sea, it is forty to fifty miles); and it is bounded due west by the meanderings of the river, fine cultivated estates, and forest growth for about eighty miles.

The prevailing WINDS, during *winter*, are, according to respective prevalence, from E., N., and N.W.; during *spring*, from E., S., S.E.; during *summer*, from S.E., E., and S.; and during *autumn*, N., E., and N.E. A perfectly calm atmosphere is very rarely noted; resulting, no doubt, from our alternations of land and water, and the rapid current of the Mississippi before so large a surface of the city. It has been remarked as a fact, pregnant with great consequence to us, that, as the forest is cleared back towards, and covering the swamps, and to the lake, there is more air stirring, and less disposition to stagnation; and with the drainage there is less moisture, and the land rises. The ventilation of the city is not at all defective; the streets are nearly all at right angles (there are few or no blind alleys), of the average width of between thirty to forty feet; four or five of them being upwards of one hundred feet, and most of these planted with trees. There are six public squares, most appropriately termed the "lungs of large cities," and all the streets would be in some measure entitled to the same beneficent appellation, were they planted with forest growth. Owing to the warmth of the climate, the houses are extremely well ventilated, even those of the poor, with but few exceptions in and about the centre, and near the markets, occupied by small traders and emigrants, mostly foreigners; but in general, the labouring population is comfortably provided for, if at all provident; for, such is the facility of acquiring here the necessaries, and even comforts, nay, luxuries of life, and in a few years, a competency, that nearly all provident, temperate people find little difficulty in doing so; the wages of labour, and particu-

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larly mechanical labour, are in great demand, very high, and support not costly.

The average annual quantity of RAIN, falling in this city, is about fifty-two inches; and although there is no proper *rainy season*—for, some years, there is just as much falling during one-half of the year as the other—yet in a long series of years (say ten, that I have overlooked my meteorological register for), there was a larger quantity falling in the winter, the next was in the summer, the next was during the spring, and the driest season was clearly and palpably the autumn. But, as the hygrometric condition of the atmosphere is but poorly estimated by the quantity of rain that falls from it, for sometimes it is directly the reverse, I have constructed a chart, exhibiting these *often opposite conditions* (*vide* Appendix C), where this is seen at a glance, and also the thermometric and barometric variations, with their respective relations to each other.

The average temperature of our WINTER months is 53.77; of the *spring*, 67.76; of the *summer*, 79.27; and of the *autumn*, 67.51; making an *annual average* of 67.07, almost that perfect temperature thought to be most agreeable and salubrious to man. The thermometer rarely reaches 90° in a fair exposure, during the summer, and during the winter seldom descends below 30°. The average *daily* range, throughout the year, is near 10°. In more southern tropical regions, where these variations of temperature are unknown, the constitutions of the natives are rendered delicate and most sensitive, by a uniforn continuance of a high atmospheric temperature, and if a fall of the thermometer of from 2° to 5° is experienced, serious consequences to comfort, and even health, are experienced. These changes are essential to vigour of constitution, and it would be a great blessing were they much greater. The nights are cool and pleasant; and with more attention to the construction of our houses, to adapt them to our climate, the sleeping rooms in summer facing the southern quarters, whence there is almost every night a body of air stirring; and planting trees in the principal streets, the heat would be much less, radiation from the brick buildings would be arrested, the air purified, and the great extreme at midday and towards night, almost thoroughly controlled.

The effects of planting trees in the streets, and of the multiplication of public squares, are well-established facts, of which there is now no dispute; experience here is too strong even for theory. A statement was published here some years ago, by one of our most respectable journals (*The New Orleans Delta*), and said "to be derived

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from one of the old respectable inhabitants, and one of the chief magistrates of the city," that there had rarely "occurred a death on the Place d'Armes, in twenty-five years." This is the most beautiful public square in the city, and on two of its sides has a dense population. The influence of luxuriant foliage and abundant shade in the public squares and streets of large cities, and particularly southern ones, is susceptible of very easy explanation; they absorb deleterious gases, and receive or prevent that reflected heat from brick houses, which is so oppressive to those who cannot otherwise escape their influence; and they hence assist in likening a city to the country, between which there is so great a discrepancy in mortality, and the difference is mainly in ventilation, shade, and foliage.

Truly, this may be considered a "SUNNY CLIMATE," for of a series of observations, extending into many years, in reference to "clear," "cloudy," and "rainy," from my meteorological journal, more than two hundred and forty days were registered "clear," seventy odd "cloudy," and about thirty "rainy" (of the three hundred and fifty noted). And from consulting a register kept here more than forty years ago, the "clear" days have greatly increased since that period; there is much less moisture in the atmosphere, less rain falling, and fewer storms; the winds diminished in strength, and more regular, the heat sensibly less, and the climate, in many respects, greatly ameliorated. All this has resulted, doubtless, from cutting down the forest growth of the neighbourhood, clearing, cultivating, and "subduing" the land to the purposes of man, and instituting that system of drainage that is destined to give this country all the advantages of an elevated champaign country, together with its own, of incomparable fertility, as much moisture as is needed for the purposes of agriculture and health, with the assurance of ample ventilation. For more particular reference to the meteorology of New Orleans, I refer to Appendix B and C, embracing an average of three years (anterior to 1843), containing a pretty fair estimate of the climate.

From all the exhibits, then, in relation to ventilation, it is apparent that the mortality of the climate arises from no noxious principle derived from stagnation of air, and that we are located in that happy medium, removed from the violence of the winds of the tropics, where the natives seem to dread it more than almost anything else, from their greatly enhanced susceptibility of nervous system, and the frequent stagnation of temperate regions. Here,

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then, there is *nothing* stagnant, neither the elements nor man; though the latter is too "go-ahead" for his interests or his health.

The city is now drained from its surface, which is extremely imperfect, and in this climate highly objectionable. The gutters are cleared by rains; by letting in water from the river at particular points at certain stages of elevation; by a steam engine in the First Municipality, for the streets appertaining to it and running perpendicular to the river; and very partially by the Water Works Co., and all most imperfectly done. The mode of removing ordinary street accumulations, from constant filling up of the gutters, and the mud pressed up from a most imperfect system of paving, with large irregular pebbles, on a moist mud substratum, is, to throw or scrape it up from the gutters, and about the surface into the streets, in heaps, for its more fluid parts to drain off, and then, after abundant exposure to the sun, it is carried off in uncovered carts, from time to time to the rear, to fill it up, at great expense to the city, and at some offence to our olfactories. The law now requires all offal from the houses to be thrown into the river, instead of the back lots, which it aided in filling up, at no expense of health to the vicinage, but sometimes offensive to smell. It is all most imperfectly carried out.

Time does not permit me to go into a system of drainage and sewerage, that is demonstrable, from effects already produced on the swamps in the neighbourhood, can make this city as dry, and, with the water power and convenience unparalleled, always at command, and at small expense, as clean as need be. It is my duty to allude to it, however briefly. It will be seen, from Appendix A, of a profile line of levels, that the river, at high water, is about fourteen feet above the level of the swamps, and that the Draining Co. has actually drained five feet *below* this. So we have here upwards of fifteen feet from the level of some of our principal streets, in a distance of half a mile to a mile, for the most perfect system of drainage and sewerage that need be required. And it is a fact well known to us all, that boggy swamps that could not be passed through a very few years ago, by man, and scarcely by beast, and only inhabited by amphibious reptiles, are now high, dry, cultivated, and prepared for the residence of man, not only without consequences injurious to health, by the exposure of such a surface to the light of day and the winds of heaven, but greatly ameliorated by this increased ventilation. The moisture has sensibly diminished, and the ground has evidently risen (one of our oldest surveyors, who has been personally conversant with it for more than forty years, thinks) more

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than ten inches. This invaluable company, which has accomplished so much, and can accomplish so much more for this city, was incorporated in 1835, and has been steadily pursuing its great destined object since, under numerous difficulties, with an intelligent engineer corps and directory. It has drained the First, Third, and part of the Second Municipalities, by digging extensive canals and ditches, to lead the water to their reservoirs, where are located their steam-engines, embracing in their range a certain section of ground, which is first levelled to prevent back water from the lake to reach it by the natural drains; the water is now pumped out of these sections, from these reservoirs, into these natural drains, and thence flows to the lake. These extensive sections, embracing an area of over two miles in diameter, are now free from water, even soon after the heaviest rains; and most of it is cleared and much built upon; and with its proposed labours of drainage, and clearing the forest growth to the lake, will accomplish more for the comfort and salubrity of New Orleans than all other improvements combined, not excepting paving.

Most of the principal business streets, to six or seven blocks back from the river, are paved, and some of those perpendicular to the river much farther back; it is done mostly with round stones, which, on such a subsoil, require constant expensive repairs in moist weather. The balance, or half the city, is unpaved, and is easily and soon cut up, in wet weather, by ordinary usage. Now the sewerage and drainage, properly conducted, would dry the subsoil, remove all offensive smells and sights, keep the lots and surface dry, and take off a very large proportion of the expense in cleansing and repairing the streets. It has already had so much effect on the burial-grounds in the rear of the city, that the dead can be placed under ground, where formerly you could not dig six inches from the surface without coming to water; and, consequently, the dead had to be buried in brick tombs (or the coffins sunk below the surface of the water by boring holes in them), which, in this climate, in a few years give way, impairing the purity of the atmosphere. It would also make the climate more dry, and prevent all the consequences injurious to health, merchandise, business, or pleasure, from being in excess.

These wonderful results are destined to be carried out to their utmost extent, by our successors, by those who shall have grown wiser by our omissions, who shall be warned by the catacombs of victims our negligence (not poverty—not ignorance) has caused,

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and who shall properly appreciate the inestimable position of New Orleans. It is notorious that all the large cities of America are underdrained, and also in England, and on the Continent of Europe, and so vitally important has it proved to be to health by most valuable experience, that it is notorious in many cities, where these drains exist, the inhabitants are almost exempt from fever, and where *they exist not, there is fever!* The towns along the river Po, the fens of England, and the low grounds of Holland, are all situated as New Orleans is, where the source of the water, and to which it is to be elevated, are all *above* the surface to be drained. If the indefatigable Hollander has seized from the ravages of the ocean, and the others converted swamps into rich fields, and appropriated them to the use of man, in comparatively inhospitable climes, and under governments where the rights of man are comparatively in their infancy, how much greater reason have we to appropriate from the "father of waters" a portion of the otherwise waste swamp—now, or but lately, a hotbed of disease, of the richest soil and finest climate in America, and under civil institutions, where man is blessed with every privilege he can enjoy.

The city is supplied by water, for potable purposes, by a company which was incorporated by the legislature in 1833, and began to furnish water to the city in 1837. It now has its pipes extended through various parts of the city, to the extent of thirty-seven and three-quarter miles. The engine by which the water is pumped from the river, is situated, with the reservoir, in the upper part of the city; the mound on which the basin is built is two squares back from the river, twenty-five feet above the adjoining streets; its area is 320 feet square, is divided into four compartments, each one successively supplying the city, while the sediment is being deposited from the others; it is capable of holding four millions of gallons of water, and the engine can pump up from the river daily, six millions of gallons of water. The cost has been upwards of a million of dollars.

There are yet but few manufacturing establishments here: one for cotton, several for spirit gas, one paper mill, extensive forges, and on the opposite side of the river several ship-yards, and floating dry-docks.

The city is well lighted with gas, and the pipes extend near thirty-four miles, at an original cost of $800,000, and an annual expense of about $100,000.

Probably no city is more bountifully supplied with aid for the sick

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during epidemics; associations for their relief are extended with a true Samaritan spirit all over the city, and thousands upon thousands are distributed with no stinting hand. The large Charity Hospital is at all times open to those asking its eleemosynary assistance, and on an average of the last three years, near 9000 beneficiaries per annum have there found an asylum, with every appliance that humanity or science could desire, or charity ask for; and at an annual expense of about $56,000 per annum, derived most appropriately, principally from a tax on passengers, balls, and places of public amusement. There are three private hospitals for the accommodation of the sick, besides an elegant U. S. Marine Hospital on the opposite side of the river, intended for the commercial marine.

There are two canals connecting the city with Lake Pontchartrain, the avenues of an extensive inland or coast commerce; and two railroads, one to Lake Pontchartrain, and the other to Carrolton, a town of about 1200 inhabitants, distant by the river about twelve miles; on the trajét of this road (about four miles) are fine seats for our wealthy citizens, and the country in the vicinage has numerous country residences for ease, health, and pleasure. The roads or drives in the neighbourhood of the city, during dry weather, are numerous and fine, and conduce much to health.

There are few subjects more cherished here than that primary one of education; receiving its impetus about eight years since, from the enlightened, intelligent zeal of Alderman Peters, and Recorder Baldwin, assisted by an intelligent municipal council, and public-spirited citizens. The holy feeling was ere long caught by our neighbours below—of the 1st, 2d, and 3d municipalities; and now the whole south of the city is, or may be, taught at the public schools, at the public expense. The system now works well; the rich and poor all receive together, the inestimable blessing of education; and here first imbibe that valuable practical political axiom of equality, as at the altar of their God. Commencing with a few scholars in 1841, there are now over 5000 in the primary, intermediate, and high schools; there are probably 1000 in private schools, and about 500 taught at their homes by private teachers. It may be seen how the value of this boon is estimated, when, according to the returned assessment, there were but about 10,000 of the proper age (between six and sixteen), in the school limits; it is then truly esteemed here a public blessing, and considered a sacred public duty to foster it; and, as such, it has been incorporated into the State Constitution. It may be mentioned, to the high honour of this young State, where

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the easy accumulation of property is so constantly seducing one to mammon by its alluring temptations, that more money has been spent in attempts to foster the interests of education, in proportion to its white population, than any other in the Union. The revenue for their support is derived from a tax of one mill on every dollar of the cash value of property on the rolls, besides a poll tax; and there is spent in this city, for these purposes, about $135,000 per annum. Libraries are being formed, attached to them, to foster and encourage a taste for reading, that admirable asylum, refuge, and protection against improper company; that of the 2d municipality already reaching upwards of 8000 volumes.

The vital statistics of New Orleans constitute a problem, and a very important one, that never has been solved; and I approach the subject with great humility and unaffected diffidence, statements having been made in relation to them, at variance with the now (I believe) ascertained facts; the true data have been heretofore wanting—the primary bases of all calculation, viz., the number of the living, and the number of the dead.

Of the first, we have to presume the U. States census for 1830 to be correct; that of 1840 (*the cause* of all the errors), we now know was not; a census was made in 1847;* it was partially correct only; the entire population *almost certainly* was not given; and then there were no details of ages, &c., and of course no basis for calculating the average age of the living; so I have taken these for 1830 as my basis, and calculated it at twenty-four years one month. In the census for 1847, none but strict *family residents* were taken; the thou-

* This is presumed to be as near correctness as we could acquire under the circumstances; by the U. States census of 1840, the population was stated to be 102,204; the over-estimate was supposed to have arisen from some vile political, or pecuniary purposes, and all the calculations in relation to the health, since, have been based upon it. To see how far this census differed from or corresponded with that of 1830, to find out where was the source of error (my only resource left), I calculated the average age of the living, according to it, to compare it with that of 1830, and found it differed but a few months, that of 1830 being as above, 24 years and 1 month, and this 24 years 10 months. It particularly becomes me to expose this vile fraud, because I have been made the innocent victim of propagating errors, in relation to the sanitary condition here, to the public, based on it, on which some reliance may have been placed, and I seize the first opportunity to wash my hands of the imposition. Nevertheless, error or not, New Orleans has been more rapidly on the increase than any large city in America, New York excepted, for, on the lowest estimate, it has been at the rate of 5.32 per cent. annually, since 1830; (the American portion, the 2d Municipality, more than doubling itself in twelve years!) while between 1830 and 1840, by the U. S. census, from the calculation of a friend, Philadelphia has increased 3.67 per cent., Boston 3.45, Baltimore 2.69, and New York but 5.81.

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sands that count New Orleans their homes, and are occasionally absent, were left out entirely; such, we know, was not the case elsewhere. I have, accordingly, on the best advice, added only 5000 for this large population, to enable me to make my ratios as correct as possible.

But there is a large class, the floating population, not enumerated in the census, that furnishes a very large per centage of our annual mortality, estimated, by those best entitled to judge, to amount to between 20,000 and 30,000, adding probably about one-fifth to our mortality, as is proved by the returns from the Charity Hospital for the last eight years, constituting one-fifth of the entire mortality, those from Louisiana forming from one to three per cent. of the admissions; besides this, there is a large number of strangers who die here, that our cemetery records do not specify as "non-residents." By reference to Appendix D, it will be seen that I have merely corrected the census of that year by adding the small number of 5000, making it 100,028, and the mortality the average of eight years, 5177, or one in 19.32, embracing all the *yellow fever* cases I could ascertain, viz., 5910! embracing also some of the sickliest years that the city has known; to show how this varies, the mortality in 1845 was one in 33.07. I have added in that table various comparative data of other cities, which will not be found without their interest.

A still greater difficulty remains in relation to the dead. I have laboured many years to acquire something like truth and certainty on this subject, and I think I am entitled to the credit of rescuing from oblivion some ten or fifteen years of the records of mortality which had been *surreptitiously* made way with. I have collected now the mortality for about forty years; but then there is wanting those valuable details of special diseases, ages, and periods of residence, &c., which should give it its greatest value; to be sure, I have some of these, and must make the best use of them I can: but it is impossible, without procuring the requisite materials, to give that accurate estimate of the "expectation of life," or its "value," or such a view of the true sanitary aspect of the climate, which is so much needed by the statistician, the insurer on lives, or him who wishes to know the risks he runs in coming here before he ventures, nor does time permit me to use, in a proper manner, all the materials I have collected.

The vital statistics of this great city in embryo, and of course what may ameliorate it, are of the last importance to the citizen, the

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patriot, and the philanthropist. I do not wish to dodge what may and must be considered a large mortality: but it is due to truth, to science, and to the place; to all those great interests involved—and not merely the local ones, to those who live here themselves, and expect to raise their families here, or those whose property is here, on whose proceeds they are luxuriating in other climes—but to more than half this great confederacy, who are deeply interested in this great entrepot, for which there can be no substitute—to make such explanations as to put fairly before the eyes of the public, and their servants and agents (the public authorities), to amend errors, correct defects, and to make such improvements as the country requires, and the climate (if bad) is susceptible of. Is this climate, then, *lethale per se?* does it belong to its position? and is it irremediable? Or, does it spring, in any measure, from habits and customs that are incompatible with the climate? These are questions of the last importance to us, to the American people, and to science. I enter into the very limited discussion of these great questions with a deep conviction that the facts demonstrating the convictions I feel are correct. I have fruitlessly sought everything bearing upon this subject for years, and though I have gathered sufficient to satisfy my own mind, and, I think, most that are open to the truth and unprejudiced; yet there are some gaps in my investigations, that may fail to produce on other minds that conviction arising from demonstration.

That diseases, or what may be called unhealthy years, occur in cycles of irregular return, is well known in the historical records of nations, in our country, as well as in others, and even among nations whose condition may be considered stationary; in many, they are doubtless much influenced by the agency of man; that various parts of our own country are being, and have been, constantly influenced by these means, is doubtless true: it is within my own recollection, and thousands now living, of various parts of our own State, where the mortality is now much less than half of what it was when passing through what may be termed its TRANSITION STATE, or that from its primeval, or forest state, to that fit for the purposes of man, and arrived at it, and made so by clearing, draining, and cultivating the land, is unquestionable. It is a general fact, that, as a country becomes cleared of its forest growth, and exposed to the influence of the sun, there is a diminished annual fall of rain; how it has been for the last four or five years here, I cannot say, from my own observations, as I have been absent—travelling,—but, upon a

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comparison of journals kept here some forty years ago, and the recollection of the older inhabitants, compared with my own observations up to 1844, there is no doubt that this is true here also. Such experience is applicable to the whole of our western country, within the knowledge of the present generation, and that all our new States to this date, have been the graves of unnumbered thousands; nor is it to be now told, for the first time, that the pioneers of civilization are to be made the first victims to the numberless blessings *to be inherited* from their toils. Such, too, is the actual fact in relation to cities; old cities are wealthier, *cæteris paribus*, than new, and new parts of old cities are more unhealthy, generally speaking, than the old; new ships are often less favourable to health than those more old. WHY, during this "transition state," there should arise a condition unfavourable to health, is difficult to say; numberless theories have been invented by the ingenuity of man to account for it; most of the hypotheses of the miasmatists have had their origin here; it is so much easier and more soothing to one's pride, if not conscience, to ascribe to some unknown, invisible agent, the cause of our diseases and afflictions, than to find fault with our own dear habits; that the various changes in all our various modes of life and our habits, the disrupture and vicissitudes to which all are thus subject, tending to destroy that balance and equilibrium on which a continuance of health so essentially depends, is much more probable, I have no doubt; for it would be almost impious to refer the greatly increased mortality to obeying one of the plainest of God's commands, that "of subduing the earth," and subjecting it to the purposes of man as a cause of disease! rather than to breaking his laws, and obeying our own passions and vicious inclinations.

That there is a peculiar air hanging over and through cities, or all great aggregations of human beings, is probable enough; indeed, every page of recorded time shows it; asthmatics feel it; the most sensible of our race feel it; children, delicate females, or those in delicate health: nay, who is insensible to the difference between country and city air? Let any one leave a city, and go a few hundred yards, on land or water, and particularly the latter, to sea, and he will be immediately sensible of it. This is independent of mere ventilation. I have myself often experienced it, and particularly during my heavy duties at Vera Cruz, when surgeon of the U. S. Army at that place during the summer of 1847, when, in attendance on the shipping off and near the harbour—immaterial which way the wind blew, from sea or shore—the peculiar feeling of

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the stomach was not experienced until we reached some hundred yards from shore. There is an atmosphere about cities that is, in a great measure, very much independent of perflation, for an epidemic will commence and be continued during, and in spite of, a rapid wind blowing all the time; that this is not from simple putrefaction, is apparent; that it is independent of, in the very face of winds that should directly blow it away, and which seems to be constantly changing the atmosphere of the place; it does not exist most where all kinds of putrefaction most abound, as in barn-yards, cat-gut, and other manufactories, where animal and vegetable substances are constantly going through this process; in butcheries, swamps, &c. &c.; it exists concentrated in filthy hospitals, where many diseases originate; others can scarcely be cured for it; it is eminently rife in blind alleys, cellars, and dirty houses, where there is a stagnant air: it prevails to a great extent wherever there is a defect of domestic and personal cleanliness, and probably more from the latter, than the former. Now it is evident the nearer we make the condition of a city approach the condition of the country, the more likely it will be to enjoy that salubrity which it enjoys over the city.

To apply the results of this well-established principle to this city, it is but fair and just, that, until its neighbourhood shall be cleared, drained, and cultivated; the sub-soil kept dry by sewerage; the streets properly paved with flat stones; the glare of the sun or reflected caloric controlled by planting trees, and particularly in the wider and less business streets; wide sheds built over our great thoroughfare (the levee, where the mass of the business is done, and, in a great measure, by people unaccustomed to the climate); the refreshing current established in our gutters, with an efficient police, *with proper habits in the people*, a large mortality will inevitably ensue, together with such an occasional epidemic, with its devastating horrors, as will cast a lasting stigma on the salubrity of the place, and retard its permanent advancement to a prosperous and stable condition. When these improvements shall have been effected, I do not doubt its being made the healthiest large city in the Union, and, withal, one of the *pleasantest* places of residence. As yet, hygienic observances have done little for New Orleans.

The actual mortality of this city by ratios (now only correctly stated), as compared with other cities (in appendix D), is certainly very large;* but then it is evident, from the ages of those who die,

* "The exposure of the mortality of New Orleans, if made years ago, might have had the same influence as a similar discovery made through statistical records in Eng-

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and from their short residence here, and from their course of life—not at all adapted to the climate—it is perfectly evident that the climate *per se* has less to do with it than other conditions. That man must mould his habits of living to the climate—or the climate to them—is as palpably evident as any proposition in Euclid; or that the same course of life is not equally adapted to all climates. Now, as it is somewhat difficult to accomplish the latter, he had better pursue the part of wisdom and discretion, and adapt himself to the former. "Mould to its manners his obsequious frame, and mitigate the ills he cannot shun." Man, in fact, is the only animal that can adapt himself to all climates, and he does it by the exercise of that intelligence with which the Great Father of all has endowed him, by: 1st, exercising that great principle of TEMPERANCE *in all things*, characterized in the Holy Book as of such vital importance; and then, 2d, adopting the rational habits of the natives of the different climes to which he proposes to adapt himself. Now, with the native, or well acclimated population, the mortality is very small; to the two extremes of infantile life and advanced age, it is extremely kind; to middle life, the male sex, and the over-free, hard, and rapid liver, it is obnoxious. That all these are undeniable facts, the records will show.

To prove that this large mortality does not proceed from the climate necessarily, we have a most unanswerable argument derived from three sources. The first I shall mention, is to show the influence of temperance on it: "Civilization, which has done so much to mitigate the physical, as well as moral ills of life, and prolong existence, can hardly be debited, with but one exception to its innumerable blessings. The modern art of distilling spirituous liquors, which has put such an unfortunate facility in the hands of the mass, who have so little control of themselves, may, by

'——— Eking from each infirmity that brings
Untimely age on us,'

be that exception. The public exposure of the evil, by the publication of the statistics of these societies, will open the eyes of the public to its magnitude, and force it to correct the evil."

I have received, on application, an official document from G. W.

land and Massachusetts, by their invaluable registration laws, where situations supposed to be healthy (and who lives in a *sickly* place!!) were only found, by the corrected returns of the mortuary records, to be eminently the reverse, and by an examination into the causes and removal, a healthy condition may be restored."

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Powell, Esq., G. W. P. of the *Sons of Temperance* in this city, exhibiting the mortality among the members of that body during the two last most fatal years known to this city, when it has been scourged by the combined influence of yellow fever and cholera, with an acknowledged mortality from them, during the period which this document embraces, of 5653! Of the 2427 members, there have died in two years, to the 1st of April (that is, from their com mencement to that date), but 29—or 1 in 83.41! This most valuable report goes on further to state in detail, that, of this mortality, 8 died of yellow fever, and 2 only of cholera—that about one-third of these deaths were of *transient brethren* visiting here for their health! And, moreover, that nine-tenths of all these members were of that *very age* (between twenty and forty) most subject to the supposed malign influences of this climate!

It is said that figures cannot lie. There is no need of it here, for this I consider but a fair exponent of the effect of the clime on those who live according to the dictates of reason and prudence (in other words, according to the rules of temperance).

The second proof I shall mention bearing upon this subject, is the influence of the climate upon that sex who are proverbially temperate everywhere. Of the large mortality by yellow fever during the last eight years, but about *one-seventh* were females! In relation to other classes of fever, &c., in this country, my own experience is equally expressive. Here, then, is another great proof, not only of the value of the principle, but a corroborating proof that the climate is not fatal *per se*.

3d. But there is still another. It is now a well-established fact that incarceration in prison most fully protects the inmates from the yellow fever. Insulation can act only in one way; it protects from disease by controlling the *habits of the individual*, subjecting him to that course of regimen prescribed by the rules of the place, utterly incompatible with any kind of intemperance.

"In Mexico, the same immunity occurred with those incarcerated during the prevalence of cholera; and, from the *same cause*, scarcely a case occurred among the temperate in its present visitation in New Orleans."

In all these cases, then, the same air is breathed by all, and they constitute a very fair test of the influence of the climate upon individuals who live regular, prudent, and temperate lives. I believe such is its actual influence on the mass of those here who pursue such rules as a guide of life. I consider that document furnishes

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one of the most unanswerable arguments in favour of temperance and the climate that was ever published in this country, and is all that was wanting to put both upon their proper footing before the public.

Temperance is a common virtue in nearly all tropical countries; stimulants of various kinds are used, but they are not of the diffusible character of alcoholic drinks, being mostly of the class of condiments, supporting the action they excite. Mortality too soon follows in the footsteps of the inebriate for the natives of hot countries not to see the graves they would be thus digging for themselves: it is then mostly confined to the emigrants from northern nations who come to this country with the additional vigour of a more rigorous climate, who are alone able to stand it long; and with them, the mortality is greatly increased thereby. It is in vain to say—by those fond of indulging themselves—in the face of all these facts, that the free liver does not hasten his end. Thirty years' experience here, and in other more tropical regions, convinces me of its truth. All records go to prove it. My cotemporaries know full well, though this kind of life gives an appearance of fine ruddy health, that these appearances are deceptive; that they do not last many years; that ere long the system shows unequivocal signs of sinking, either by the occurrence of some form of stomach or bowel-complaint—by apoplexy, palsy, or some congenerous ailment, indicating the wearing out before their time of the organs essential to life.

These are unpalatable and unpopular truths; but to my profession belongs the important, though disagreeable task, as sentinels on the watch-tower of health, not only to point out the mode of curing, but often the more important one to communities, to indicate, for the sake of avoidance, the source of danger. To my personal knowledge, the medical profession here for the last thirty years has done its duty, and done it at every hazard to fame, to life, and to profit; and if their advice had been followed, New Orleans this day would be nearly as long ahead of its present destiny. It was the opinion of our distinguished countryman, Dr. Rush, that the medical profession was about twenty to thirty years ahead of the public, in information in relation to health; in *that time*, the public usually becomes sufficiently enlightened to estimate the value of hygienic laws, observances, and improvements, from time to time recommended by the profession. If a present outlay of a few thousands is more valued than human life, that outlay will be more than tenfold repaid by the increased value of property, by increased population,

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and by a vast addition to our comforts.* If eternal vigilance is the price of liberty, why should it not be of health? I am fully aware that this country can never be entirely healthy, whatever may be its changes in its physical condition, *unless the habits of the people* are entirely adapted to it. I am not so Utopian as to believe that man will enjoy perpetual health, or live to extreme old age, anywhere; but the history of our species in all quarters of the globe, and at all times, will serve to show to the unprejudiced observer, that that great blessing is rather the reward of his adherence to the laws of hygiene than of external conditions, though these are of great importance, and essential to enable him to carry out, and put in execution, some of the most important laws of hygiene, and especially in relation to dryness and moisture, ventilation, and exercise.

* These important truths now find universal acceptation. "Whatever preserves health, serves society; for sickness, besides its vexation, occasions a loss of property and a loss of time, and often it involves both the property and the time of others."—*Ensor*, London, 1818.

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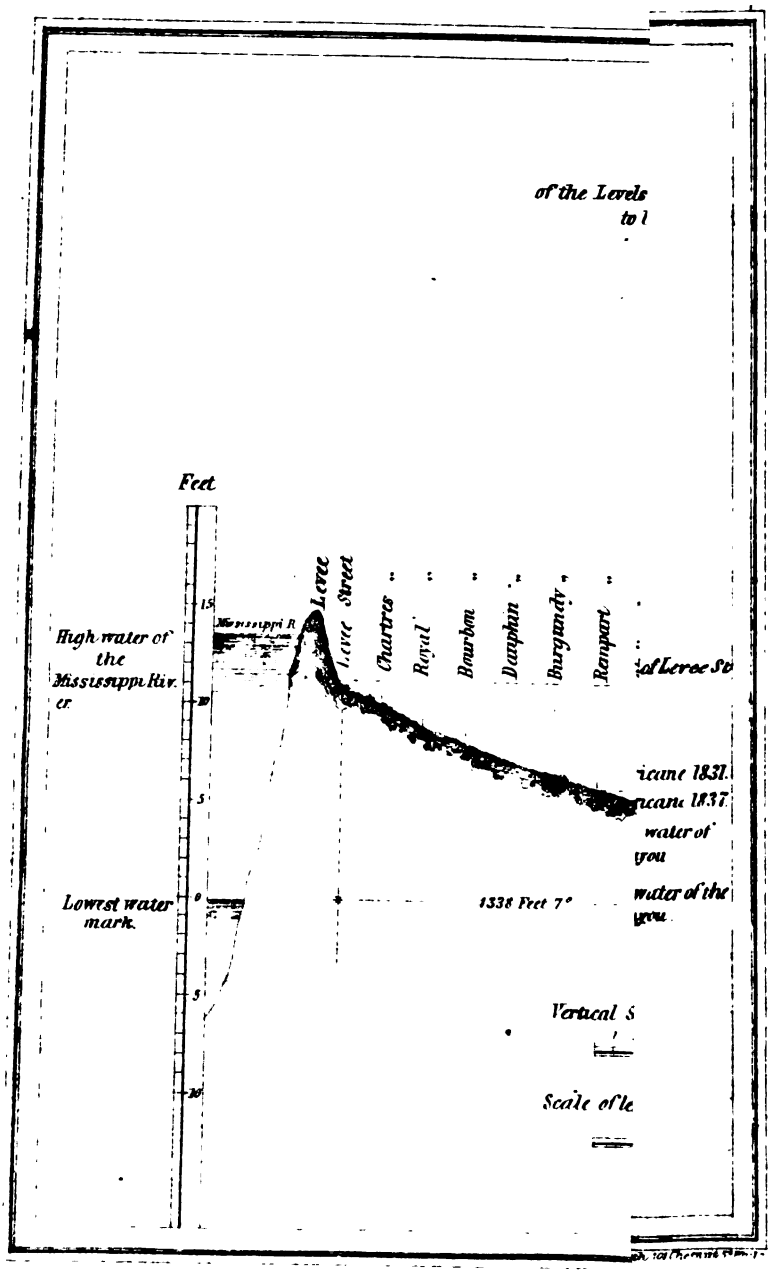
APPENDIX B.

MONTH.	THERMOMETER. 4 observations per diem.								
	Average at sunrise.	Average at midday.	Average at sunset.	Average at 10 o'clock at night.	Highest.	Lowest.	Mean for the month.	General range.	Average daily do.
Jan.	53.04	57.70	53.53	52.18	74.33	33.	53.2[illegible]	41.	10.59
Feb.	53.57	63.16	59.44	55.22	74.33	37.33	57.93	37.	10.89
Mar.	60.12	71.14	65. 1	62.92	78.66	51.	65.00	27.66	8 68
April	61.76	76.25	70.34	68.54	82.66	57.33	69.17	25.33	10 27
May	69.30	80.47	73.82	72.37	84.	59.	74 23	28.	8.29
June	74.37	83.78	78.68	73.78	87.66	10.	77.82	17.66	9.98
July	77.89	83.90	79.06	79.02	89.33	72 66	79.80	16.66	7 44
Aug.	75.20	84.35	79.30	77.33	87.66	69.	78.82	19.	8.80
Sept.	72.22	80.70	76.17	74.61	88.	63.66	75.92	21.	9.41
Oct.	62.98	74.06	68.03	66.61	80.66	47.	67.64	34.35	10.82
Nov.	51.16	62.95	56.26	53.87	75.66	34.	55.22	41.66	11.99
Dec.	46.50	57.95	51.42	47 62	73 66	34.33	51.91	40.	11.60
							67.22	29.10	9.93

MONTH.	BAROMETER. 4 observations per diem.							
	Average at sunrise.	Average at midday.	Average at sunset.	Average at 10 o'clock at night.	Highest.	Lowest.	Mean for the month.	Monthly range.
Jan.	30.193	30.113	30.123	30 103	30 460	29.790	30.117	.63
Feb.	30.140	30.143	29.893	30.127	30.456	29.860	30.146	.66
Mar.	30.096	30.040	29.916	29.966	30.326	29.823	29.906	60
April	30.110	29.943	30.090	30.066	30.273	29.933	30 040	.35
May	30.110	29.910	30 093	30.113	30.326	29.900	30.096	.43
June	30.146	30.060	29.936	30.113	30.240	29.800	30.100	.44
July	30.143	30.090	30.136	30.146	30.296	30 036	30.143	.19
Aug.	30.100	30.113	30.133	30.116	30.266	30.020	30 093	.24
Sept.	30.150	29.870	30.086	29.983	30.190	29 930	30.006	.25
Oct.	30.110	30 066	30.123	30.113	30.376	29.923	30.113	.48
Nov.	2 yrs. 30.100	30.160	2 yrs. 30.205	2 yrs. 30.190	30.443	29.796	30.200	647
Dec.	30.195	30.183	30.185	30.180	30.443	29.986	30.190	.487
							30.072	.433

MONTH.	HYGROMETER. Once a day—at midday.				ASPECT OF THE WEATHER. 3 observations per diem.			
	Highest.	Lowest.	Mean for the month.	Range.	Clear.	Cloudy.	Rainy.	Quantity of rain.
Jan.	68.21	26.32	49 66	41.80	16½	7½	5	10.820
Feb.	69.42	29 51	50 92	38 91	17½	8½	2½	6.890
Mar.	72.57	32.03	50.13	35.54	19½	9½	2½	3.966
April	74.77	48.92	67.67	29.18	21	3½	1½	4.918
May	75.92	53.67	67.83	22.58	27	3½	1½	2.963
June	78.57	64.67	73.78	13.69	23½	3½	3½	3.954
July	80.28	72.33	75.77	7.95	16½	6½	2½	5.900
Aug.	78.98	66.99	74 59	11.99	21	4	3½	5.813
Sept.	78.07	59.92	73.47	18 48	17½	8½	2½	3.930
Oct.	76.20	44.69	61 53	34.98	24	4½	2½	2.840
Nov.	70.73	31.16	52.04	39.58	22	6	2½	2.370
Dec.	62.26	31.34	46.54	30.92	19	8½	3½	4.690
					245	72	29	58.654

MONTH.	WINDS. 3 observations per diem.							
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Jan.	7	4½	7½	2½	5½	3½	1½	2
Feb.	3½	1½	9½	2½	3½	3	1½	3½
Mar.	4	2½	7½	3½	6½	4	1½	1½
April	2½	3	8½	4½	6	2½	2	2
May	3½	3	7½	2½	4½	4½	1½	3
June	1½	2	7½	3	5½	8½	1½	½
July	3½	1½	5½	5	8	5½	4½	1
Aug.	4	3	6	3	2½	5	2½	1½
Sept.	4½	6	11½	2½	2½	1½	1	1
Oct.	2½	4½	11½	1½	0½	0½	1½	2½
Nov.	7½	4½	7	1½	2½	2	1½	3
Dec.	8½	3½	6½	2	2½	1	2½	3½



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APPENDIX B.

MONTH.	THERMOMETER. 4 observations per diem.									BAROMETER. 4 observations per diem.								HYGROMETER. Once a day—at midday.				ASPECT OF THE WEATHER. 3 observations per diem.				WINDS. 3 observations per diem.							
	Average at sunrise.	Average at midday.	Average at sunset.	Average at 10 o'clock at night.	Highest.	Lowest.	Mean for the month.	General range.	Average daily do.	Average at sunrise.	Average at midday.	Average at sunset.	Average at 10 o'clock at night.	Highest.	Lowest.	Mean for the month.	Monthly range.	Highest.	Lowest.	Mean for the month.	Range.	Clear.	Cloudy.	Rainy.	Quantity of rain.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Jan.	53.04	57.70	53.53	52.18	74.33	33.	53.28	41.	10.59	30.193	30.113	30.123	30 103	30 460	29.790	30.117	.63	68.21	26.32	49.66	41.89	16½	7½	5	10.820	7	4½	7½	2½	5½	3½	1½	2
Feb.	53.57	63.16	59.44	55.22	74.33	37.33	57.93	37.	10.89	30.140	30.143	29.823	30.127	30.456	29.860	30.146	.66	69.42	29 51	50 92	38 91	17½	8½	2½	6.890	3½	1½	9½	2½	3½	3	1½	3½
Mar.	60.12	71.14	65. 1	62.92	78.66	51.	65 00	27.66	8 68	30.096	30.040	29.916	29.956	30.326	29.823	29.996	60	72.57	32.03	59.13	35.54	19½	9½	2½	3.966	4	2½	7½	3½	6½	4	1½	1½
April	61.76	76.25	70.34	68.54	82.66	57.33	69.17	25.33	10.27	30.110	29.943	30.090	30.066	30.273	29.933	30 040	.35	74.77	48.92	67.67	29.18	21	3½	1½	4.918	2½	3	8½	4½	6	2½	2	2
May	69.30	80.47	73.82	72.37	84.	59.	74 23	28.	8.29	30.110	29.910	30 093	30.113	30.326	29.900	30.096	.43	75.92	53.67	67.83	22.58	27	3½	1½	2.963	3½	3	7½	2½	4½	4½	1½	3
June	74.37	83.78	78.66	73.78	87.66	10.	77.82	17.66	9.98	30.146	30.060	29.936	30.113	30.240	29.800	30.100	.44	78.57	64.67	73.78	13.69	23½	3½	3½	3.954	1½	2	7½	3	5½	8½	1½	½
July	77.89	83.90	79.06	79.02	89.33	72 66	79.80	16.66	7 44	30.143	30.090	30.136	30.146	30.226	30 036	30.143	.19	80.28	72.33	75.77	7.95	16½	6½	2½	5.900	3½	1½	5½	5	8	5½	4½	1
Aug.	75.20	84.35	79.30	77.33	87.66	69.	78.82	19.	8.80	30.100	30.113	30.133	30.116	30.266	30.020	30 093	.24	78.98	66.99	74 59	11.99	21	4	3½	5.813	4	3	6	3	2½	5	2½	1½
Sept.	72.22	80.70	76.17	74.61	88.	63.66	75.92	21.	9.41	30.150	29.870	30.086	29.983	30.190	29 930	30.006	.25	78.07	59.92	73.47	18 48	17½	8½	2½	3.930	4½	6	11½	2½	2½	1½	1	1
Oct.	62.98	74.06	68.03	66.61	80.66	47.	67.64	34.35	10.82	30.110 2 yrs.	30 066	30.123 2 yrs.	30.113 2 yrs.	30.376	29.923	30.113	.48	76.20	44.69	61 53	34.98	24	4½	2½	2.840	8½	4½	11½	1½	0½	0½	1½	2½
Nov.	51.16	62.95	56.26	53.87	75.66	34.	55.22	41.66	11.99	30.100	30.160	30.205	30.190	30.443	29.796	30.200	647	70.73	31.16	52.04	39.58	22	6	2½	2.370	7½	4½	7	1½	2½	2	1½	3
Dec.	46.50	57.95	51.42	47 62	73 66	34.33	51.91	40.	11.60	30.195	30.183	30.185	30.180	30.443	29.986	30.190	.487	62.26	31.34	46.54	30.92	19	8½	3½	4.690	8½	3½	6½	2	2½	1	2½	3½
							67 22	29.10	9.93							30.072	.433					245	72	29	58.654								

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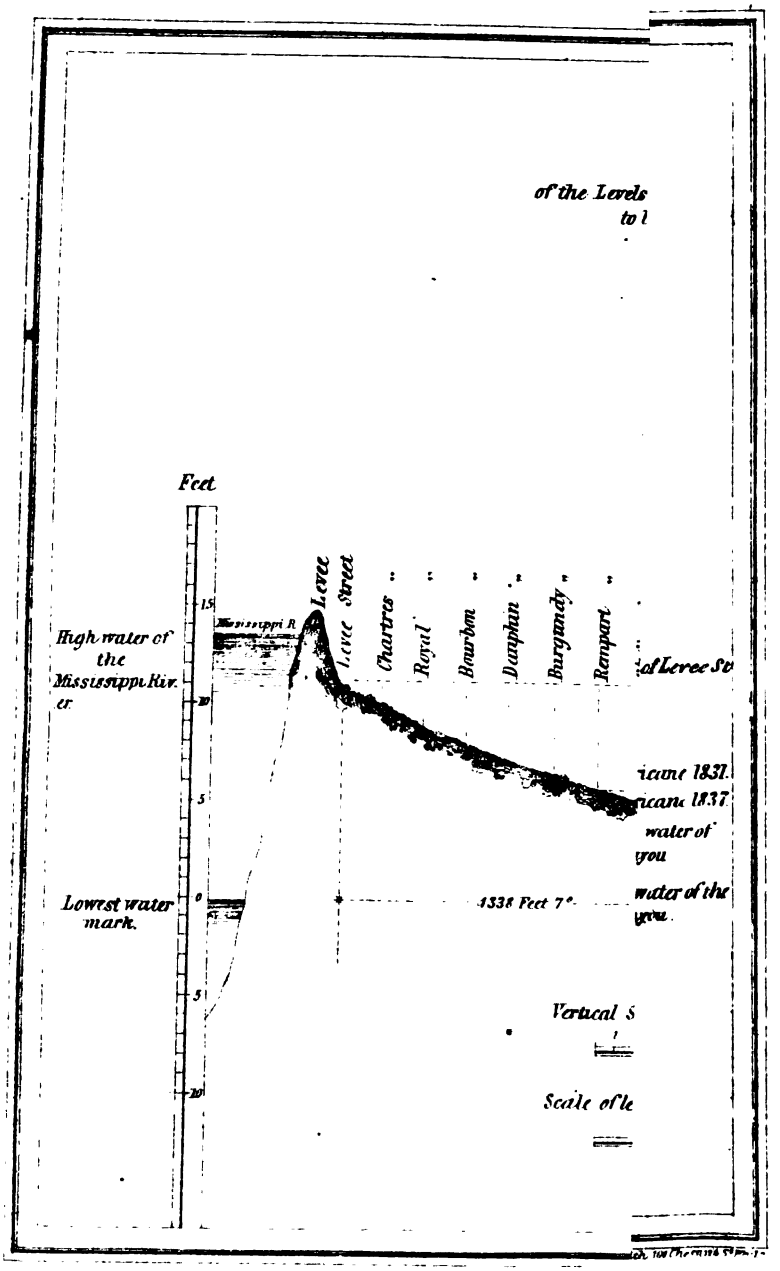

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APPENDIX D.

CITY.	Population.	Year.	Average age of the living.	Year.	Ratio of deaths to population.	Year.	Average age at death.	Year.	Average annual deaths.	For No. of years.
			years mo.				yrs. mo			
Boston	114.366	1845	23 5	1845	1 in 48.87	1845	20 3	1845	1.919	10 yrs.
New York	421,791	1846	23 1	1840	27.83	Dr. Stevens	18	1846	11.069	1 yr. '46
Philada.	101,345	1845	24 1 Whites	1840	48.92	1845	19 11	1845	5.881	'45–'46
Baltimore	124,331	1848	23 1 Whites	1840	29.37	1848	19 9 Whites	1848	3 258	'35—'45 10 yrs.
Charleston	29,261	1840	24 3 Whites	1840	48.36	1840	35 11¼ Whites	1848	.739	'35—'45 10 yrs.
N. Orleans	100,028	1847	24 1 Whites	1830	19.32	1841—1848	26	'41-'48	5.177	'41—'41 8 yrs.
Havana	162,508	1841	28		35.87	1841			4.568	'36—'46 10 yrs.
Vera Cruz	5,500						24 6	1846		
Mexico	170,000				27.76	1844			6.122	1844
U. States			22 2							

N. B.—In some of the cities, the population is estimated by adding the ratios of increase, where known. Of Vera Cruz and Mexico, I have seen no publication of the census; I was then told what I here state.

The calculations have been made in great haste, and under many disadvantages. Mr. B. W. Cohen, of this city, has much aided in those relative to this place; and a kind friend, who would blush to see his name in print, has lent me much aid with the others. I have tried to make them *correct*. In the haste necessarily attendant on the entire preparation of this report, during a severe epidemic, I could only fill up its details by snatches of anxious moments, and it is thrown upon the charitable indulgence of my compeers.

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APPENDIX E.

Statement of the Winds, in New Orleans, by Months and Seasons.

AVERAGE NUMBER OF DAYS BLOWING FROM THE RESPECTIVE POINTS OF THE COMPASS.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
BY MONTHS.									
January	6	3⅛	6¼	3⅛	3	2¼	2¼	2⅜	Being on an average of 8 years, viz., from 1835 to 1842, inclusive.
February	3⅜	2	5¼	3⅛	2	3⅛	1⅜	4⅜	
March	3⅛	2	6¼	3⅜	6¼	2⅞	1⅛	2⅛	
April	1⅜	2⅜	7	4⅜	6⅜	2⅛	1⅜	3⅛	
May	2¼	2¼	6	4⅛	5⅛	4¼	1⅛	2⅜	
June	1⅛	1¼	5¼	4⅞	4⅜	6⅜	2¼	1⅜	
July	2⅛	1⅜	5	6	6	4⅛	3⅜	1⅜	
August	3⅛	3⅛	4⅜	4¼	3⅛	4	2⅞	2	
September	5¼	5⅛	6⅛	2¼	2⅛	1¼	1⅛	2	
October	6¼	5⅜	6⅜	1⅛	1	0⅞	1⅞	3¼	
November	8	3	4⅜	3¼	2⅛	1⅛	1⅜	3¼	
December	7⅛	3⅜	6	2⅜	2⅛	1⅛	2⅛	4¼	
BY SEASONS.									
Winter	6	3	6	3	2⅜	2⅛	2	4	Average number of day's winds each month of the season.
Spring	3	2⅛	6⅛	4⅛	6⅛	3⅛	1⅜	3	
Summer	2⅛	2⅛	5	5	4⅜	5¼	3	2	
Autumn	6⅜	4⅜	5⅜	2⅛	2	1⅛	2⅜	3	
Winter	17¼	9¼	17⅛	9⅜	7⅛	6⅞	6⅛	11⅜	Total number of day's winds each season.
Spring	7¼	6⅞	19¼	16	18¼	9⅜	4⅞	8⅜	
Summer	7⅜	6⅜	14⅜	15¼	14⅜	14⅜	8⅜	5⅛	
Autumn	19⅜	14	17⅜	7	5⅛	3⅛	4⅜	8⅜	
Winter	2d	5th	1st	4th	6th	7th	8th	3d	Relative frequency of each wind during *each season.*
Spring	6th	7th	1st	3d	2d	4th	8th	5th	
Summer	6th	7th	2d	1st	3d	4th	5th	8th	
Autumn	1st	3d	2d	5th	6th	8th	7th	4th	
BY THE YEAR.	2d	5th	1st	3d	4th	6th	8th	7th	Relative frequency of each wind during the *year.*
Actual No.	51¼	36⅛	69⅛	47⅛	45⅜	34⅛	24⅛	34	

Total number of days noted having been 342⅜.

APPENDIX F.

Comparative Statement showing the Proportionate number at each interval of Ages, in every 10,000 *Living, in Louisiana, America, and England.*

AGES.	United States.	Louisiana.	New Orleans.	England and Wales.	United States.	Louisiana.	New Orleans.	England and Wales.
Under 5 years	1744	1933	1239	1324	3708	3753	4924	4028
5 and under 10	1417	1476	1205	1197				
10 " 15	1210	1217	940	1089				
15 " 20	1001	1032	949	997				
20 " 30	1816	1882	2158	1780				
30 " 40	1160	1215	1756	1289				
40 " 50	732	656	1010	959				
50 " 60	436	347	433	645				
60 " 70	245	169	192	440				
70 " 80	113	54	81	216				
80 " 90	32	14	27	59				
90 and upwards	4	4	8	5				
100 and upwards		1	2					
	10,000	10,000	10,000	10,000				

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H.—10.

Letter on the Sanitary Condition of Louisville, Ky.
By L. P. Yandell, M. D.

Louisville, *March* 15, 1849.

Dear Sir: I avail myself of my earliest leisure to reply to the questions proposed to me in your circular letter. In doing so, I shall not have it in my power to submit as many statistics as I could have wished to lay before the Association; but some of the facts which I shall be able to present have an important bearing upon public hygiene, and will not, I trust, prove wholly uninteresting to the profession.

Louisville, in Kentucky, is situated on the south bank of the Ohio River, at the Falls, lat. 38° 3′ N., long. 8° 45′ W. from Washington City, on a beautiful plain, seventy feet above low water-mark, stretching back, and gently declining from the river. The plateau is constituted of sand and river gravel, intermingled with a tenacious clay, and reposes upon a friable shale, analogous in character to the Genesee, State of New York. The disintegration of this slate has imposed upon the Louisville plain its peculiar features. Everywhere, this rock forms a surface remarkable for its evenness; and the soil which it produces, as it crumbles under the action of the air, frost, and water, is peculiarly retentive of moisture. Ponds and slashes are abundant, wherever the black slate constitutes the surface rock.

The first houses erected at the Falls, were built in the midst of ponds. Entire squares of the city are now pointed out, which occupy the ancient beds of ponds, large, and deep enough to float a steamboat. These have all been drained, and such collections of water are now nowhere to be seen within the city limits. But, south of the city, and extending twenty miles to the mouth of Salt River, is a district of country known by the ominous name of the "Pond Settlement," which is still but partially reclaimed. The traveller, as he pursues the public road in the direction of Nashville, sees on either hand a continuous chain of shallow ponds, until he reaches another formation, beyond Salt River.

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Louisville is a flourishing city. In 1780, it contained a population of only thirty souls; and in the next twenty years the number of its inhabitants had increased to but six hundred. In 1820, it had reached four thousand; in 1830, ten thousand; now it may be stated at fifty thousand souls.

The bed of the river, at the Falls, is composed, of the uppermost strata, of the gray, or cliff limestone, which, as well as the slate superimposed upon it, belongs to the Devonian system. The gray limestone is a compact rock, and its hardness at this point is increased by the immense infusion of fossil remains, chiefly corals; and the result is, that it yields slowly to the abrading action of water. The black slate originally overlapped it here. It is of a soft structure, and is rapidly worn away by the stream. In these facts, we have an explanation of the Falls. The river has washed away the destructible slate, and its current follows the dip of the resisting limestone. The coral reef, and the superposition of the slate at this point, may be stated as the cause of the Falls of the Ohio.

The plateau, which forms the site of the city, having a gentle slope from the river, gives a slight current to the water, which falls upon the surface, and slowly drains the ponds. No rock is near the surface, and consequently ditching is effected with facility. It has been carried on to a considerable extent; but much in that important line remains to be done.

Louisville, while it stood amid its ponds, was regarded as one of the most sickly towns in the valley of the Mississippi. It was commonly called "the graveyard of the west." It is now esteemed one of the most healthy. Intermittent fever was a regular annual visitant; and occasionally a form of bilious fever prevailed, rivalling yellow fever in malignity, and threatening to depopulate the town. The most fatal of these endemics broke out in the summer of 1822, after a hot, rainy season. The number of victims from it, out of a population less than five thousand, was 232.* In a family, consisting of twenty persons, nineteen were sick at one time, and in some families, every individual died.† At this time, only one street in Louisville was paved, and within its limits were at least eight ponds of greater or less dimensions, most of which, in the course of the autumn, were dried up, exposing foul bottoms to the sun.‡

* Dr. J. P. Harrison, Philad. Med. Journ., vol. viii.

† Collins' Kentucky, p. 364.

‡ Dr. J. P. Harrison, *op. citat.*

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Ten years after this fever had prevailed with such fatality, cholera appeared in Louisville. From the severity with which it had been visited by fevers, the citizens expected the approach of this pestilence with painful forebodings. But cholera proved milder in Louisville than in any of the neighbouring cities. Indeed, it hardly at any time assumed an epidemic character. When at its height, the daily average number of deaths from it were only about seven, as reported by the Board of Health. In Cincinnati, three hundred and fifty-one fatal cases occurred in twenty-seven days. On one day, forty-two persons died, or one out of every six hundred inhabitants then in the city. In Lexington, the mortality was still greater. This town, with a population not exceeding six thousand, lost five hundred of its inhabitants with cholera. In a single day, sixty deaths occurred, which was one to every hundred of its population, and one to every fifty actually in town. These facts are striking. It is not pretended that they establish the superiority of Louisville over its neighbours in respect to health. In the progress of cholera a second time, to which we are looking forward, the fate of the three cities may be reversed; but the statistics afforded by its former prevalence are worthy of being noted.

No fever approaching in malignity to the endemic of 1822, has ever since appeared in the city, nor, indeed, had one ever before appeared of so fatal a character. The citizens were awakened by this visitation to the importance of taking some measures for the removal of the causes of disease, and not long afterwards a system of internal improvements was instituted, which has been in operation ever since. The ponds have all disappeared. The streets have generally been paved, and though the grading is defective, and can never be as effectual for drainage as it might be rendered on a less even surface, still it is such as to carry off the rains into the river, and the ditch south of the city. In most of the gutters, water stands for some time after a rain, and, becoming green in the summer time, presents a forbidding appearance. But the quantity which thus collects in any one place is small, and I am not aware that disease has ever been traced to this source.

The only parts of Louisville obnoxious to the charge of unhealthfulness are its suburbs. Beargrass, a small, sluggish stream, with alluvial banks, which empties into the river at the foot of Third Street, taints the air in its neighbourhood. The ponds send up their

* Dr. Drake, Western Journ. Med., vol. vi. p. 67.

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effluvia from the south; and the extended rock of the Falls, laid bare by the retreating river in dry seasons, exhales the poison of intermittent fever. The inhabitants along Beargrass, and of Water Street, and of the scattered dwellings in the outskirts of the city, are sorely afflicted with this fever. Now and then, a season passes without its occurrence; but it is looked for by people in these quarters, as well as by the residents of the country in the neighbourhood, as a regular visitant in autumn. The cause, however, is giving way, year by year, and the time is probably not far distant when the Pond Settlement will be reclaimed, as Louisville has been, from the dominion of malaria. The infected circle is receding. In 1837, it was not deemed safe to reside nearer the limits of the city than Walnut Street. Now Chestnut Street is considered healthy. As we go from the suburbs towards the crowded parts, the chances for health increase; and as the new streets are built up, a barrier to the fever poison is thrown around the older neighbourhoods. Hence, up to the present time, the growth of the city has been tending continually to increase its salubrity.

The streets and alleys are cleansed by hand, and with nearly equal care; but, owing either to the imperfection of the system, or to the inadequacy of the force employed, it would certainly be difficult to find anywhere more uncleanly lanes and thoroughfares than Louisville exhibits. The refuse from the houses is deposited in the streets and alleys, and, with the filth produced by every other cause, is allowed to accumulate in heaps, until the period comes around for the carters to haul it away. One of the first things that strikes the eye of the stranger is the neglected condition of our streets. He wonders how Louisville can be healthy, with such masses of putrescent matter in its midst. It may be doubted whether, in this respect, Louisville does not compare disadvantageously with any city of equal size in the country.

The streets of the city are wide, and cross each other at right angles, which secures the most perfect ventilation, and favours their drying fast after rains. Many of the alleys are closed at one end, and on some of these a number of poor families reside who experience the evils of confined air, in addition to the discomforts arising from the filth that must accumulate around their crowded dwellings. The houses of the poor are generally bad; not only small and badly ventilated, but built, the first floor on, or near the ground, so that they are damp and unwholesome. In the poorer quarters of the city, a family is generally to be found occupying each apart-

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ment of a building, and from five to ten persons will often be met with in a room. The houses, though so constructed as to prevent a free circulation of air, are so open as to expose the inmates to cold in winter, and when fuel is dear much suffering is experienced from this cause. They are warmed, for the most part, by stoves; but the more improvident poor are not supplied with this comfort, and such use open fireplaces.

The public schools, twenty-four in number, are open to children at the age of six years, and all are crowded. The system is one which calls for reform in several particulars. Too many scholars are congregated in a room, either for health, or for mental or moral improvement. In some, there are as many as 130; and in none, less than 60. The largest rooms are not forty feet square, and many are of much smaller size. The children are kept in them from three to four hours in the morning, and two and a half to three hours in the afternoon. The long vacation is in summer, and lasts six or seven weeks. The health of the children is good. The number of teachers in the several schools is too small. It is not possible for the children to take exercise in the small yards connected with the schools, and they are consequently forced into the streets to enjoy it. Louisville, by a fatal oversight, neglected to provide grounds, when she might, for the exercise and recreation of her children, and now the opportunity has passed away. Fortunately, her streets are so wide that, planted as they are with fine trees, this evil will not be so sorely felt as it would be in cities less happily constructed. Broadway, when graded and set with trees, according to the plan which has been commenced, will afford a promenade as beautiful as could be desired.

The Louisville Marine Hospital is the only receptacle for the sick in the city. It is a well-constructed charity, under the control of the city council, where marines especially are received and attended to, and clinical instruction is given to the students of the medical school. The means for ventilation in it, as well as in the other public buildings of the city, are effectual. In all the churches, the upper window-sashes can be lowered, in a way to afford circulation of air without draughts upon the congregation.

The city is supplied with water from wells, which are from forty to sixty feet deep. After passing through beds of sand and gravel, a layer of tough clay is reached, upon which the water rests. It is largely impregnated with the salts of lime, especially the carbonate; and, in some of the more ancient wells, gives evidence of an old and

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crowded settlement. There has been, for several years, a project entertained for supplying the city with river water. Abundant as is the present supply, and excellent as is the quality of the water in most parts of the city, it is clear that the time is approaching when we must look to another source, and we are admonished, by the deterioration of the water on the first settled streets, that it is near at hand.

From the statements given, it will be seen that the only prominent source of disease in the vicinity of Louisville is the marshy surface formed by the black slate, and that this source is being gradually dried up. It will strike the observer with interest that the health of the city has gone on improving, *pari passu*, with the draining of the country. No doubt it would be better if the streets were more thoroughly cleansed, if the drainage were better; if less water stood upon the surface and in the gutters; if the houses of the poor were better built, and better ventilated; if there were open squares for the exercise of old and young; if we were supplied with pure water from the river: but, as we have seen, Louisville has been visited with no malignant fever for more than a quarter of a century. Cholera came in a form less fatal than that in which it appeared at Cincinnati, and far less than that in which it prevailed at Lexington. Typhus and typhoid fevers, which have been prevalent in those cities, and in many parts of the country, continue up to this day comparatively strangers here; and cholera infantum carried off more children in St. Louis in a week, a few summers since, than it did in Louisville in a month. My experience enables me to compare this city with Lexington, and with Nashville and Murfreesborough, in Tennessee; and I have no hesitation in saying that, as a residence for children, it is preferable to either of those towns. It would be difficult, indeed, to find a city where a more numerous infant population is exhibited on the streets, or where the children, in their ruddy complexions and vivacious movements, give better proofs of high health.

Some years since, I drew the attention of the profession to the fact that, in the spread of cholera over the western country in 1832, and 1833, it was particularly fatal in those places where a limestone rock is the prevailing formation.* I have already alluded to the fact in this communication, and will simply add, that I have not been able to learn that the pestilence was fatal in any locality where

* Western Journal, vol. vii. (new series), p. 152.

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the surface rock is sandstone or slate. If, in its future progress, the disease should be found to conform to this law, the fact will acquire great importance. In casting his eye over the country, Louisville, with its flat marshy surface, is the spot upon which the etiologist would have fixed as the one where cholera would exhibit its highest virulence, while Lexington had every prospect of escaping the pestilence. Lexington and Cincinnati, Versailles, Nashville, and Shelbyville, Tennessee, are all upon the same limestone, and cholera was fatal in all. New Albany, four miles below Louisville, on the opposite side of the river, but on the same geological formation, afforded only a few cases of the disease.

Very respectfully, yours,

L. P. YANDELL.

LOUISVILLE, *March* 15*th*, 1849.

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H.—11.

Letter on the Sanitary Condition of Cincinnati.
By J. P. Harrison, M. D.

James Wynne, M. D.,
Chairman of Committee on Public Hygiene of the American Medical Association.

Dear Sir: In answer to the questions submitted in your circular of May last, I beg leave to return the following replies:

Question 1.—Population 110,000; the city is situated on the northern bank of the Ohio River; on the south, it is bounded by steep hills of ancient fossiliferous rocks, and on the eastern and western boundaries the hills jut in, leaving a space of only about two hundred yards free, between them and the river. The city stands on two terraces, the lower of which is liable to be inundated in very high floods of the river. These terraces are composed of sand, gravel, and loam—the deposited materials of a long prior overflow of the river. The soil is alluvial; the sub-soil sandy and gravelly. The city is favourably placed for rapid drainage, the water escaping along the streets from the upper and lower terraces to the river.

Question 2.—The character of the town in reference to health is very good. Near the White Water Canal, which runs through a part of the city, along the lower terrace at the west end, ague and fever is somewhat prevalent in autumn. There is but little bilious remittent fever seen within the limits of the town. In the more crowded parts, especially among our German population, cholera infantum is very fatal during the hot months. This fatality is attributable to two influences: crowded and ill-ventilated apartments, and indigestible aliment.

Question 3.—The streets and alleys are laid out generally for surface drainage; there are but few sewers; the drainage is not well accomplished in all parts of the city.

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Question 4.—The streets are cleansed by scavengers hired by the city authority; but the streets are not kept in as clean a state as they should be; the courts and alleys are cleansed whenever the streets are; the refuse from the houses, such as kitchen refuse and ashes, is thrown into the streets; the hogs devour what they will, or can, and the remainder is taken up by the scavenger carts about every three weeks. The street manure is thrown on the wharves to extend accommodation to the river landing. It is very rarely carried into the country, as the soil does not require any kind of manure.

Question 5.—The streets are wide; the ventilation free. There are only two or three courts or alleys built up and closed at the end. The houses of the poor are generally good; but, as in all cities of any magnitude, too many persons among the poor occupy the same building. Among the Germans especially, eight or ten families are seen to occupy the same house—a family in each room. This is not common among the native portion of our population. The houses of the poor are warmed by stoves or grates, in which the bituminous coal of Pittsburgh and of other points below that city on the river is burnt. Wood is burnt by some few families in air-tight stoves. Among the more wealthy families, the stone coal is consumed in grates, or the houses are warmed by heated air from cellar furnaces.

Question 6.—The system of public schools is founded on entire freedom, without any payment of fees, supported by a public tax. The teachers are efficient in every sense; the children well taught in the common elements of a sound English education. The children are allowed certain periods of the day for exercise, half an hour being given them, for that purpose, between the regular school hours. They are received from seven to fifteen years of age. The rooms are large, well aired, with good pitch of ceiling—in brick buildings especially constructed for the accommodation of a large number in each edifice—four large rooms in each edifice. During July and August, vacation is allowed; perhaps during six, but I think, eight weeks.

Question 7.—There is but one hospital, the Commercial Hospital, which receives the boatmen from our steamboats, and other river craft, as well as the sick poor of the city. There is an appendage to the hospital, called the Pest House, to which small-pox patients are taken; this building is in a distant spot, with no dwellings near

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it. The township trustees, who, by law, have the oversight of the hospital, appoint four physicians not attached to the hospital, who attend the poor at their houses. These physicians receive an annual remuneration from the township trustees. The public buildings are well ventilated. There is no provision for public grounds or squares.

Question 8.—The town is supplied by hydrants from a large reservoir, filled by steam-worked machinery; the Ohio River, above the city, supplies the water. It is liable to become turbid in winter, but is very clear during the summer; it is abundant and salubrious.

Question 9.—Our municipal regulations are pretty good; neither very stringent, nor altogether void of effectiveness; on the whole, rather leaning to the side of laxity.

Very respectfully, yours, &c.
JOHN P. HARRISON.

CINCINNATI, *Dec. 4th*, 1848.

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H.—12.

The Yellow Fever Quarantine at New Orleans.
By E. D. Fenner, M.D.

James Wynne, M. D.

Dear Sir: Your favour of the 20th of May last, informing me that I had been honoured by the American Medical Association with an appointment on the Committee of Public Hygiene, came duly to hand, and at once prompted the determination, on my part, to undertake the task. But, little did I then know what difficulties and interruptions I should have to contend with. Since that time, I have passed through an epidemic of yellow fever, and what might be called two epidemics of cholera, all which has so completely occupied my time as to render it impossible for me to comply with your request in a satisfactory manner. I regret this the more, as the occasion presented by the close of the Mexican war, and the return of about thirty thousand men from that country, afforded such an admirable opportunity to investigate the point to which you have invited my special attention, viz., the *contagion of yellow fever.* In view of the task before me, I made ample memoranda of the principal facts presented, but am now under the disagreeable necessity of cutting you off with a few brief extracts from my journal, and adding some general remarks on the subject. A more full detail of such information as I have obtained will perhaps appear in our medical journal at a future time, or in a contemplated work on the yellow fever of New Orleans.

You inform me that "the Sanitary Report of New Orleans is confided to Dr. Barton"—and request that I will "examine and report upon the subject of yellow fever, with the view of showing how far it may be affected by hygienic measures, and what advantages or disadvantages result from our present quarantine regulations."

I am pleased to learn that my worthy colleague has performed the task assigned him, and I doubt not his report will be read with interest. Dr. Barton has long been familiar with the topography

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and diseases of New Orleans and lower Louisiana, and ought to be as well qualified as any one in the State to make a report concerning them.

A difference of opinion has ever existed respecting the nature and origin of yellow fever at this and the neighbouring places where it has prevailed for a little more than half a century past. Whilst some have contended that it is a *specific disease*, introduced from the West Indies into New Orleans towards the end of the last century, when Louisiana was a colony of Spain, others, comprising some of the ablest and most experienced observers, have been perfectly convinced that it is only *one of the forms of endemic malarial fevers* occurring at irregular intervals. One party contends that it may be spread or propagated by means of *infection* or *contagion*. This is unequivocally denied by the other. At the same time, there is a third party which entertains some of the opinions belonging to both.

For some time past, I have been endeavouring to trace the history of yellow fever from the time it first made its appearance in New Orleans. I have not yet finished the investigation; but from the lights before me, I am inclined to believe that it never prevailed here previous to the year 1793. In some old historical records, there is a vague allusion to it at an earlier date; but our full and reliable accounts only extend back to the period mentioned. I have recently conversed with five most respectable, wealthy, and intelligent old gentlemen, who settled in this city about the beginning of the present century, that is, from 1797 to 1804. They all say the disease was spoken of familiarly when they first came here. One of them (Col. Manuel White, who came here in 1801) recollects well a prevailing opinion that yellow fever was a disease brought into New Orleans from the West Indies, not many years previously. Another (Mr. Joseph Saul, who came in December 1803, and established the first branch of the old United States Bank) says he was intimately acquainted with Dr. Robert Dow, an eminent Scotch physician, who had then been practising medicine in this city for fifteen or twenty years, and he recollects distinctly having often heard Dr. Dow remark that, *previous to the year* 1793, *he had never seen at this place any other than the ordinary intermittent and remittent bilious fevers of southern latitudes, and that they readily yielded to mild treatment;* but that, in the year mentioned, being the same as that in which Philadelphia was so severely scourged, yellow fever made its appearance in New Orleans, and continued afterwards to do so at irregular intervals. Dr. Dow continued to practice here till

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about the year 1824, when he returned to Scotland, and there lived nearly twenty years longer. Mr. Beverly Chew came here in 1797. He recollects hearing much of the yellow fever in 1794 and 1796. He speaks in the highest terms of Dr. Dow. Mr. McDonough and Mr. Parkwood, who settled here before the purchase of Louisiana, have recently given in statements similar to the foregoing. All these intelligent old gentlemen, who have lived here so long and seen so much of the disease, had long since arrived at the conclusion that yellow fever *originates in this place, and is not contagious.* These opinions are maintained by all the early medical writers on the yellow fever of New Orleans, whose essays I have been able to find. Without going more minutely into the progress of the disease at this place, a subject on which I might greatly enlarge, let me proceed at once to the consideration of *hygienic measures* and *quarantine regulations.*

My worthy colleague, Dr. Barton, will doubtless lay before the Association all the information that may be desired respecting the topography and sanitary condition of New Orleans. He will probably show that, although much has been *incidentally* done in the way of improvements, *much more* remains to be done before we can hope for any decided mitigation or expulsion of our city's great scourge. In fact, hardly anything has ever been done *expressly* with the view to improve the health of the city. All the improvements that have been made within the last twenty-five years (and they have been both extensive and costly), were almost exclusively designed to facilitate commerce and business. But you wish to know of me "how far yellow fever may be affected by hygienic measures?" When I look around me, and see a large number of people living but a short distance off, exposed to the same sun, winds, and rains, drinking the same water, eating nearly the same food, and yet *exempt* from yellow fever, I can but imagine that much might be effected. The inference is irresistible that there must be *something within the city* which gives rise to the morbific cause. Nor can I abandon the belief that *what it is* may, by diligent search, be discovered and removed.

As for the *old delusion*, that yellow fever is brought into New Orleans from the West Indies, Vera Cruz, or any other place, and might be kept away by quarantines, I need only say that the experiment has long since been fairly tried, and it signally failed. It is but fair to admit, however, that we still have amongst us intelligent men, who believe in the efficacy of quarantines, and are anxious to

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see the experiment tried again. So recently as 1847, the legislature had the subject before it, and came near adopting the measure. Fortunately, it failed, and I trust the experience of the last two years will serve to explode the idea altogether. The following is a summary of the legislation in this State on the subject of quarantines, as far as I have been able to ascertain:—

The first act is dated March 17th, 1818, and is entitled "An act to establish a Board of Health, and Health Office, and to prevent the introduction of malignant, pestilential, and infectious disease into the city of New Orleans." This act provides for the establishment of quarantine, a lazaretto, &c.

The second act was passed on the 6th March, 1819; repeals the first act, and orders the sale of the lazaretto, and everything connected with the quarantine establishment.

The third act was passed on the 17th February, 1821, and is entitled "An act to provide against the introduction of infectious diseases," &c. This act again constitutes the Board of Health, and establishes a quarantine ground.

The fourth act was passed on the 19th February, 1825; repeals the last act, but gives the City Council power to pass quarantine laws.

So far as I have as yet ascertained, the City Council has never passed any laws on the subject; and thus quarantine regulations were permitted to sleep until the winter of 1847–8, when another ineffectual effort was made to revive them. It has been said that the quarantines of 1818 and 1821 were not rigidly enforced, and therefore did not afford a fair experiment. On the contrary, I have heard that they were most rigidly enforced, and only abandoned when they were found to be utterly useless.

In connection with this, I may be permitted to give you some information respecting the operation of quarantines at Natchez and Vicksburg, two towns or cities on the Mississippi River, above New Orleans. There are two villages between Natchez and Vicksburg, viz., Rodney and Grand Gulf. The first epidemic of yellow fever that ever prevailed at Natchez occurred in 1817. Since then, it has prevailed at irregular intervals (one as long as twelve years), though "there have been a few cases almost every year," according to the testimony of Dr. S. A. Cartwright, a distinguished practitioner of that place.

The first epidemic that ever prevailed at Vicksburg occurred in 1841. Since that time, there have been two or three epidemics, but

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so mild as to cause doubts amongst some of the physicians of the place as to their being true yellow fever. It is not denied, however, that, among the few that died each year, were several well-marked instances of *black vomit*. The village of Rodney was scourged by a severe epidemic of yellow fever, for the first time, in 1843, and by a milder one in 1847. Grand Gulf has, so far, been entirely exempt, excepting such cases as were brought there on steamboats, and these have occurred every year when the disease prevailed in New Orleans; but no instance is known of its having been communicated to the inhabitants of the place.

I am informed that, about the time quarantine was first established at New Orleans, it was likewise established at Natchez, and in like manner abandoned, after a few years' trial. In 1841, it was again established, and has continued in force, as occasion seemed to require, ever since; but I have the best authority for saying that, during the time (a period of eight years), scarcely a year has passed without presenting a few cases of yellow fever, and in some a considerable number.

After the severe epidemic of 1841, quarantine was established at Vicksburg, and has been maintained ever since, with results very similar to those at Natchez.

There has never been any quarantine either at Rodney or Grand Gulf. As before stated, yellow fever has prevailed at the former place, but never at the latter.

Bayou Sara and St. Francisville, two villages on the Mississippi River, about half way between New Orleans and Natchez, present some curious and interesting facts in relation to yellow fever. I cannot do better than give you the following extract from a letter I received from Dr. P. B. M'Kelvy, one of the oldest and most respectable physicians in that region. The letter is dated *St. Francisville, March 20th*, 1849. The Dr. says:—

"I recollect but one case of yellow fever before the autumn of 1839, which was brought here from New Orleans, and died. No other cases occurred. In 1839, the fever prevailed to an alarming extent. How it originated, I cannot say; but the *first* recognized case was a man by the name of Banta, a resident of the place. This epidemic was confined to *Bayou Sara*. No case occurred *on the Hill*, or in St. Francisville, three-fourths of a mile distant from the river bank. One case, however, died in St. Francisville, having been brought from Bayou Sara. From that period until 1843, I do not remember having seen or heard of a case. In 1843, the

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epidemic seemed to be confined to this village (St. Francisville). No case occurred under the Hill or at Bayou Sara, that I know of. A remarkable peculiarity attended this epidemic: although there were many persons residing in the village but partially acclimated, no individual was attacked or died but those who were *creoles* of the parish or State, or had resided here for many years. I was not able at that time to trace the origin of the disease beyond the precincts of the village. The same year they had the fever in Woodville (1844); we had four cases here, originating in that place; three recovered, one died; he had the black vomit when he arrived, and lived but a few hours. *No other cases occurred.* In 1846, I recollect one case brought from New Orleans early in the season—that is, he was taken with the fever a week or ten days after his arrival; *he died.* Some five or six weeks subsequently, an epidemic of a very mild type broke out simultaneously here and at the Bayou—only two bad cases, one of which died. *Neither of them had been in any way exposed to any other than local causes.* 1848. One case originated here—had not been out of the village or to the city for some months; unacclimated; *died.* No other cases. During the periods embraced in the above remarks, the intercourse between this place and Bayou Sara, on the river bank, and between that and New Orleans, was free and uninterrupted at all times."

For the information of the reader, I may state that the village of Bayou Sara extends from the water's edge to a hill in the rear. St. Francisville is located on the high grounds directly back, not quite a mile distant. No quarantine has ever been established at these places. A semi-weekly line of packets runs constantly between them and New Orleans, to say nothing of the immense number of steamboats always running on the river.

It is a well-known fact that, since steamboats first began to run on the Mississippi River (1812), thousands of instances have occurred in which persons who had contracted yellow fever in New Orleans, travelled away on these boats, and either died amongst the passengers, or at some of the various landings along the river as high as the mouth of the Ohio. Yet the first epidemic of this disease ever known above this city occurred at Natchez in 1817—the first at Vicksburg in 1841, and the first at Rodney in 1843. At the same time, it is not to be denied that a few remarkable instances have been presented, in which the disease broke out at small towns in the interior of Louisiana, commencing from the arrival of cases just from New Orleans. My time will not allow me at present to exam-

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ine the connection, whether dependent on *consequence* or *coincidence.*

In 1844, there occurred an extraordinary epidemic of yellow fever at the little town of Woodville, situated in the interior and southern part of Mississippi, some forty or fifty miles from the river at Bayou Sara. In the first volume of the *New Orleans Medical Journal,* may be found full accounts of it from the hands of Dr. A. R. Kilpatrick and Dr. C. H. Stone. These gentlemen took antagonistic grounds as to the origin of the disease. The former contended that it was *imported* in the person of a transient Methodist preacher, who had recently arrived there from Galveston, Texas, passing through New Orleans, at both of which places yellow fever was prevailing to quite a *moderate extent.* On the other hand, the latter contended that it was evidently of local origin. To say the least, it would appear very strange that a disease could be transported a distance of five or six hundred miles by sea and land, in the person, or summer wardrobe, of a Methodist preacher, and thus propagate itself in a place where *such a disease never prevailed before;* whilst *four cases* went from Woodville to St. Francisville, where the disease *had prevailed before,* only about forty miles distant, and yet *failed to spread amongst the inhabitants;* as has just been shown by Dr. McKelvy.

I have received from Dr. William McCraven, of Houston, Texas, some interesting information concerning the beginning and progress of yellow fever at that place; but am compelled to withhold it till a future time.

Let me now return to New Orleans, and briefly allude to such facts bearing on the contagion or infection of yellow fever as have fallen under my own observation since the year 1841, in the latter part of which I came here to live. In this year, there was a memorable epidemic, and the few believers in the importation of yellow fever contended strenuously that the disease was brought from the West Indies on board the ship "Talma." I have not before me an account of the attendant circumstances; but, on inquiry, I found that but few persons believed that the disease was introduced from abroad, whilst the great majority, as well physicians as intelligent citizens, entertained no doubt that the breaking out of yellow fever about the time the "Talma" arrived with sick on board, was *a mere coincidence.* It was just about the time the epidemics generally commence here.

We had moderate epidemics in 1842, '3, and '4. I made it my

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special study, and noted carefully the facts attending the commencement of the disease each year. I am compelled to withhold them at present for want of time, but I declare to you that *I saw nothing calculated to sustain the position that the disease was imported* in those years.

In 1845, there was a complete exemption from yellow fever. There may have been a single case of doubtful character admitted into the Charity Hospital.

In 1846, there were about one hundred and sixty deaths from yellow fever. The disease made its appearance very late in the season, and partook very much of a typhoid type—hemorrhages and black vomit, in some instances, occurring as late as the eleventh and fourteenth days. In the history of yellow fever, this year should be memorable as the first of the Mexican war, and on account of the extraordinary circumstances attending it.

In the third volume of the *New Orleans Medical and Surgical Journal*, Nos. 2 and 3, you may find some memoranda of passing events, made at the time, to which I beg leave to refer you. It will there appear that, during that summer, which was remarkably wet and warm, about 15,000 men from the interior and upper country passed through this city on their way to the seat of war on the Rio Grande. Most of them were necessarily detained here about two weeks, commencing a camp life and exposed to very bad weather. In the month of August, about *six thousand* Louisiana volunteers, not one-fourth of whom, perhaps, had suffered yellow fever, were discharged, and sent back from Mexico. The city was a perfect thoroughfare for unacclimated persons; and notwithstanding all this, there was but little sickness. It fortunately happened to be one of our healthy years; otherwise the mortality must have been terrific. Intercourse with the West Indies, where yellow fever was pretty bad this year, was uninterrupted; but we had no access to Vera Cruz, and there was no yellow fever on the Rio Grande. So much for 1846.

In 1847, we had one of the most extensive epidemics that ever scourged our city. In the fifth volume of the *New Orleans Medical and Surgical Journal*, No. 2, Sept. 1848, may be found a rude account of this epidemic, to which I beg leave to refer you for particulars. In the month of March, the famous city of Vera Cruz, generally considered the favourite abode of yellow fever, succumbed to the victorious arms of our commander, General Scott, and was

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retained by us till the close of the war. The main body of our forces being directed to that line, which led on to the city of Mexico, Vera Cruz necessarily became almost as great a thoroughfare as New Orleans. The new levies were constantly pouring in that direction, whilst the sick and discharged were likewise returning. Now the advocates of *imported infection* were confident of witnessing a brilliant illustration of their position; whilst the impartial seeker after *truth* was glad to have such an opportunity for investigation. I can only here briefly mention the result, having carefully noted all the first cases that occurred in this city. Notwithstanding the great and continued intercourse between Vera Cruz and New Orleans, yellow fever prevailing at the former place all the time, but few cases were brought over to this city, and the most careful inquiry I could make, did not bring to light *one single instance in which it was communicated directly to any person either in New Orleans or Lafayette*, a town joining us above. This position is fully sustained by our Board of Health in its published proceedings, as follows:—

"*Meeting of the Board of Health, Monday, July* 12*th*, 1847.—****** Five deaths from yellow fever have occurred in the Charity Hospital, and two or three cases are still under treatment in that institution. They appear to have originated in the city, and no facts have come to light to prove any connection between these cases and the fever prevailing at Vera Cruz or other foreign ports.

(Signed) "W. P. HORT, *Chairman.*

"A. HESTER, *Secretary.*"

I regret that my time will not allow me to report some of the interesting facts on which this opinion is based.

I come now to the last year, 1848, which derives especial importance from the facts that in it the Mexican war was brought to a close, and that between the 1st of May and the middle of August, our whole army, numbering about *thirty thousand men*, returned home—the greater part passing through Vera Cruz, and nearly all coming directly to New Orleans, *without affording a single instance in which yellow fever was communicated from one person to another.* I do not hesitate to say, that I can bring the united testimony of the army medical staff engaged here, to substantiate this assertion. I have full memoranda of the principal circumstances attending the return of our army and the sickness of the season, which I hope to publish in the July number of our Medical Journal.

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It may not be considered irrelevant to the subject under consideration to make some allusion to the various forms of *fever* which usually prevail at this place. In the *New Orleans Medical and Surgical Journal*, vol. v. No. 1 (July, 1848), may be found some statistics compiled from the books of the New Orleans Charity Hospital, showing the monthly and annual admissions of the different forms of fevers for a period of seven years, 1841 to 1848. From that paper I extract the following concluding remarks:—

"From these tables, it appears there were admitted, of all kinds of fever, 19,445 cases—of which 9991 were marked '*intermittent.*' Add to which 26 cases marked '*pernicious*' and 'malignant intermittent,' and 257 marked '*congestive*' (which is a form of intermittent), and you will have 10,274 intermittent, or *more than one-half of the whole amount by* 1103.

"The following table will show the relative prevalence of what is marked '*intermittent fever,*' at the different seasons of the *same seven years*:—

	Spring.	Summer.	Autumn.	Winter.
1841	112	403	177	92
1842	119	453	394	135
1843	85	208	413	137
1844	117	469	732	231
1845	180	358	664	206
1846	236	569	1045	218
1847	391	508	691	602
Totals	1240	2963	4116	1621

"Is it not curious to note the gradual increase and decline of intermittent fever at this hospital, and also the remarkable fact that this form of fever is *never entirely absent? not even at the zenith of the worst epidemics of yellow fever!* In August, 1847, when there were admitted 1611 cases of *yellow fever*, there were also admitted 74 cases of *intermittent.*

"Two interesting questions here present themselves, viz., *What portion of all this intermittent fever really originated in New Orleans? and in what part of the city did most of it occur?*

"The city of New Orleans is certainly a *great thoroughfare*, and has a larger transient or floating population perhaps than any other to be found. It is accessible by ships, steamboats, and land car-

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riage. It is surrounded by a low, level, and very fertile country, having a large number of free white labourers. This class is engaged in the country principally in draining wet land, and, to some extent, in the mechanic arts. About the city, it is also engaged in draining the suburbs, but perhaps to a greater extent in street labour, such as paving, draying, loading and unloading ships and steamboats on the levee. Their residences are chiefly in the newer and more retired parts of the city, where rents are cheapest; but they are also interspersed amongst those of the wealthier classes.

"Now the Charity Hospital is opened *gratuitously* to all indigent invalids, male and female, white or coloured; and there is no obstacle to admission. This charity is only offered to the *indigent;* but *pay wards* are provided for those who are able to afford a moderate compensation.

"I believe it has been established that the poorer classes suffer everywhere more than any others from all kinds of fevers. Such is certainly the fact here, where the usual *exciting causes*, such as intemperance, exposure to the hot sun, &c., are very potent. The records of the Charity Hospital do not afford any precise information as to the length of residence in New Orleans. The question is asked, and the time stated; but the clerk informed me that he made no distinction between a residence in the city proper and the neighbouring country. The house surgeon and one of the clerks gave the opinion that most of the cases of intermittent fever occurred amongst the labourers in the suburbs and vicinity of the city. But the truth is, the labourers on the levee, streets, and canals furnish the greatest number of *all kinds of fever* at this place. My own opinion is, that those localities within the precincts of the city which afford the greatest amount of intermittent fever, also afford the greatest amount of remittent, bilious, and yellow fevers; moreover, that *they are all closely allied affections.* * * * * * *

* * * * * * "One more reference to the statistics, and I have done. It appears that the total admissions of *all diseases* into the main building of the Charity Hospital, during the above stated period of *seven years*, was 45,713—of which 19,445 were for *fevers;* and of these last, 10,274 were for the different forms of *intermittent fever.*"

Here necessity compels me to close my report, leaving me to regret that I have not been able to perform the task assigned me with more satisfaction both to you and myself. Having attended

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the first National Medical Convention, which met in New York in 1846, I have ever felt a deep interest in its proceedings, and would gladly contribute anything in my power towards the accomplishment of its great objects.

I have the honour to be, with high regard,

Your obedient servant,

E. D. FENNER.

To JAMES WYNNE, M.D., *Chairman of the Committee on Public Hygiene, American Medical Association.*

NEW ORLEANS, La., April 16, 1849.

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H.—13.

On the Influence upon Health of the Introduction of Tea and Coffee in large proportion into the Dietary of Children and the Labouring Classes. By SAMUEL JACKSON, M.D., Professor of the Institutes of Medicine in the University of Pennsylvania.

THE attention of the Committee was directed to an investigation of the influences exerted by the extensive introduction of tea and coffee into the dietary of children; and also the effects produced on the health of the labouring classes by the substitution of those luxuries for food.

In the above proposition, the facts assumed, it is believed, do not require the verification of statistical evidence, which could only be procured by considerable personal sacrifice and labour. They are matters of constant and familiar observation to every one, and are daily forced on the attention of medical practitioners. The large consumption of tea and coffee in this country tends to corroborate indirectly the statements asserted. In no other country, in proportion to population, is it as great as in the United States.

It is well known to be the custom of our people, that, as soon as children are able to sit at meals, they are placed at the family table, and partake of the same food as adults. The food especially adapted to the digestive organs and the nutrition of children, when it is provided as often occurs, is, however, the exception to the general rule. In the poorer classes, the evil of a common diet for all ages cannot probably be avoided. It is one of the causes productive of the greater mortality of the children of the poor. But this injurious practice, which with the poor is to be regarded as an inevitable misfortune, is followed by those who are placed in circumstances above the necessity of it. In them it is most condemnable, and can be excused only on the plea of ignorance and want of thought.

It is a subject of not less notoriety that coffee and tea are employed extensively, as articles of food, by various classes of our

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population. Tea, coffee, and bread are the breakfast and supper; and tea, bread, and potatoes, with occasionally a modicum of meat, are the dinner of thousands in every portion of our country. They are the food of children as of adults.

The classes in which this kind of alimentation prevails are female teachers, seamstresses, factory women, weavers, tradesmen, small retailers, clerks with families, and others living on restricted means, and very generally farmers in the country.

The inducement for its adoption is its economy, as to money, time, and fuel. A meal of coffee or tea, and bread, or the addition of potatoes, for a small family, will not cost beyond a few cents, while it requires but little fuel and a very short time for its preparation. Tea and coffee are, besides, very palatable, produce temporary exhilaration and force, and abate hunger. Coffee, as will be shown, is not devoid of some nutritive properties. Ostensibly answering, in this manner, the purposes of food, tea and coffee have, from the considerations of cheapness and convenience, become the substitutes of more substantial diet.

In this country and England, chiefly, tea and coffee are introduced into the daily meals as aliment. In China, tea is used as a refreshing and cordial beverage, presented to visitors, or drunk between meals; in the East, coffee is regarded in the same light, and employed in the same manner; on the Continent of Europe, coffee is extensively used, but more as a cordial drink, or to flavour cream and milk, than as aliment.

In prosecuting this inquiry, with a view to the effects, on the economy, of tea and coffee, some preliminary matters require previous examination.

Every one knows that food is indispensable to life. But what is this connection between them? How is it that food is an indispensable condition of life? The solution of these questions is necessary to the understanding of the nature and objects of food, to determine the value of any alimentary articles, and to settle the pretensions of any substance for a place in the category of food.

Before examining the relation existing between food and life-action, it is important to obtain an accurate idea of what is life, or organic action. This term we limit to a single series or class of phenomena. These phenomena are the evolution or production of specific organizable matter and definite organic forms, from a primary, formless, organic substance. Albumen is that substance in man and the

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higher animals. All other phenomena are excluded. They are subordinate to, depend on, but are indispensable to maintain life-action.

Organized tissues, and organs worked out by life-action, are the instruments of life. They differ widely from each other. Each has its special office. The phenomena of each are special in character and purposes. They are the same as similar phenomena in the exterior and inorganic world. They can be properly understood and studied only in their connection with those phenomena. Some are chemical, as the transformation of albumen, the processes of digestion, secretion, and the oxidation of carbon and hydrogen in the blood producing animal heat. Others are physical, as the capillarity of tissues, imbibition, endosmose, atmospheric pressure, and Graham's law of the diffusion of gases, in respiration; others are dynamic, as the excitor, motor, and other forces of the nervous system; others, again, are purely mechanical, as the actions of the muscular system.

Not one of those is properly an organic or life-phenomenon. They are indispensable to maintain the condition of the existence of life, or organic action. They are chemical, physical, dynamic, and mechanical actions, executed by organized and living apparatus and instruments, for the objects of life.

The organizable matter and organic forms are the products, and, consequently, the expression of existing forces or causes of action. Forces, matter, and form are indissolubly connected with, and give rise to, phenomena or function; and, inversely, function and phenomena are the correlatives of force, matter, and form. Organized matter, from its nature, cannot be persistent. Under normal states, force, matter, form, and function or phenomena, are permanent; but the structural material itself is not permanent—it wastes, decays, disintegrates, and is reproduced in every act of life. Life-action is thus resolvable into two inseparable actions, or links of one action, a birth and a death, the formation and destruction of the organic material of our structure.

The supply of the primary organic substance for this incessant renewal and building up of the organized structure, and maintenance of organic forms, is derived from the blood. This fluid, in its natural state, is a concentrated solution of all the solids and products of the animal economy. The amount of azotized or albuminous compound matter destroyed in twenty-four hours by life, or organic action, may

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be taken, on an average, at two to three ounces.* The blood would rapidly become impoverished, and unfitted for life objects, unless its losses of albumen and its organic derivatives were constantly restored. The renewal of the organizable or plastic material of the blood, and its maintenance in its normal composition, for structural formation, is one of the offices of our food. Repeated analyses have demonstrated that, of the aliment that is adapted to healthy nutrition, one-eighth part only consists of albumen, or its protein compounds, or their derivative compounds; and, whatever is devoid of those substances—that is, the chemical combination of carbon, hydrogen, nitrogen, and oxygen, in the proportion to constitute protein ($C_{40}A_{30}N_5O_{12}$†) or albuminous compounds—cannot perform the office of food, or be fitted for nutrition.

Another condition, not less indispensable to life-action than organizable or plastic matter in the blood, is a definite temperature. For man and the warm-blooded animals, the heat essential to healthy, vigorous life-action is 98° to 100° F. So important is heat to life, that nature has made provision for its constant disengagement in the economy. This is accomplished by the incessant oxidation of carbon and hydrogen in the blood. The temperature of this fluid is thus kept at an equable point in every part of the economy. Every organized molecule requires, for the exciting and sustaining of its life-action, the presence of plastic or organizable material, and a definite temperature.

The blood furnishes both these indispensable conditions of life-action to each living molecule.

The carbon and hydrogen oxidized in the blood, and in this manner generating animal heat, are obtained from the food. Nature has made most ample provision for the supplies of these chemical elements, by constituting them a large portion of the food of animals. Not less than from six-sevenths to seven-eighths of the alimentary substances of animals consist of non-azotized bodies. Fatty, starchy, and saccharine matters are of this character; they are not adapted to or intended for nutrition, but solely for the purpose of calorification, by their combustion or combination with oxygen introduced into the blood by the processes of respiration. This proposition is demonstrated in the composition of the alimentary portion of milk.

* Dumas, Chimie Physiologique et Médical, p. 463.

† Mulder.

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The caseine, or plastic matter for nutrition, averages 13 per cent., the calorifacient, or the cream and sugar of milk, 87 per cent.

Temperature is required not only for life-action, but also for the dynamic forces, and mechanic power and actions seated in and performed by the muscular apparatus.

The identity of heat and mechanic force has been established by M. Joule.* It is expressed in the following formula: the heat required to raise one gramme (15 grains) of water one degree (cent.) is capable of raising 432 grammes (3700 grains) one metre, or 8½ feet.

According to the estimate of Dumas, the quantity of carbon consumed by a man in good health (valuing the hydrogen by an equivalent proportion of carbon), averages from seventeen to twenty-eight ounces per diem. The large amount of heat thus disengaged is the sum of the dynamic or excito-motor force of the nervous system.

By the establishment of the above facts, we obtain precise ideas of the nature of food, its objects in the economy, and the modes of its operation. We are enabled to say with certainty what substances are or are not food; and to fix the relative value of each article of diet.

From these investigations, it is ascertained that alimentary substances form two distinct classes, differing from each other by the most striking diversities of nature, composition, and operation.

The first class are the protein or albuminous compounds. They have nearly the same chemical composition as the tissues, are isomeric with many of the immediate organizable materials of animal structure, and are exclusively destined to nutrition proper, or the reconstruction and repair of the solids.

No substance in which this especial chemical composition, protein and its compounds, does not exist, can belong to this class, or can be employed in the economy for its nutrition. Some of the most eminent organic chemists and physiologists appear to suppose that any organic nitrogenized body may answer for nutrition. This is not so. Morphia, quinia, strychnia, urea, taurine, as well as theine and caffeine, are organic nitrogenized bodies, yet cannot be ranked as food. It is the possession of the specific combination of which protein is the base, that can alone entitle any substance to rank in this class.

The second, or calorifacient, class of aliment comprehends those

* Comptes Rendus, tome xxv. p. 209.

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special chemical compounds, hydro-carbons mostly, that are capable of prompt decomposition into carbon and hydrogen in the blood. No other organic substances, though rich in carbon and hydrogen, are capable of entering into this division of aliments.

The normal substances of this kind are glucose and lactic acid, into which saccharine and amylaceous substances are converted by the process of salivary digestion; and fatty matters, modified and reduced to the finest and minutest particles possible, in the emulsion formed with them by the pancreatic and biliary secretions.

This last class is the more immediately connected with the maintenance of life. It is established by the experiments of Chossat,* that death from starvation does not occur from inanition, or the waste of the organs, but from the cooling of the blood, from the absence of the carbon and hydrogen requisite to carry on the process of combustion and the generation of caloric.

With the preceding facts ascertained, we can now proceed to investigate the claims of tea and coffee to be regarded as properly belonging to either of the above classes of food.

Theine and caffeine, according to Liebig, are the essential elements of tea and coffee. The two are identical as to chemical equivalents. The formula for each is $C_8H_5N_2O_2$. M. Payen, in a later and more elaborate examination, gives a somewhat different formula, but not such as to vary their properties to any extent. Liebig considers them as closely approximating to alloxan, $C_8H_4N_2O_1$, a principle obtained from urea, by the action of concentrated nitric acid; and to taurine ($C_4H_8NO_{10}$), a principle which may be obtained from ox bile, but not from human bile.

In this view, tea and coffee must be excluded wholly from the classes of aliments, to which theine and caffeine can have no pretensions.

But M. Payen, in 1846, in a communication to the Academie des Sciences,† presented a highly laboured and accurate examination of the proximate constituents of coffee, which unquestionably brings it, at least, into the category of aliments, as it contains the constituents of both classes.

The following is his analysis of coffee:‡

* Recherches Experimentales sur l'Inanition, Paris, 1843.

† Comptes Rendus, tomes xxii., xxiii., 1846.

‡ Ibid., tome xxiii., f. 249.

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Cellulose - - - - - - - -	34
Fat substances - - - - - -	10 to 13
Glucose, dextrine, and an indeterminate vegetable acid - - - - - - - -	15.5
Legumin, caseine (gluten) - - - - -	10
Chloroginate of caffeine and potassa - -	3.5 to 5
Azotized organic matter - - - - - -	3
Free caffeine - - - - - - - -	0.8
Insoluble, concrete vegetable oil - - -	0.001
Fluid, aromatic essence of sweet odour, and a less soluble acrid aroma - - - -	0.002
Mineral substances, potassa, lime, magnesia, phosphoric, sulphuric, silicic acids, and a trace of chlorine - - - - - - -	6.697
Water - - - - - - - - -	12.
	100

From this composition of coffee, it is evident the grain is endued with nutrient or plastic and calorifacient elements, and, consequently, is an aliment; yet the proportion of these elements is not sufficient to place it in a high rank in either class, or to justify the substitution of its *infusion*, as a chief material of food, by those who are engaged in active and laborious pursuits.

But, when the quality of the weak infusion almost generally used as food, and the consequent very small proportions of the alimentary elements held in solution in it, are taken into consideration, the disparity between the waste of the blood, and the elements for its reparation contained in coffee, become strikingly displayed. The ordinary coffee of the labouring and industrious classes is little more than warm water coloured and aromatized by coffee. It contains but a very small portion, if any, of the nutritive and calorifacient elements. It is impossible, with such diet, to maintain in the blood the two indispensable conditions of life-action and nerve-force, organ izable material and heat.

Coffee, to be prepared as food, should be first but slightly roasted, merely browned and rendered crisp, so as to be easily reduced to a coarse powder. A concentrated infusion is then to be made by the process of displacement. There should be added to it an equal, or double its quantity of cream or good milk, and be sweetened with sugar. An alimentary drink is thus prepared, possessing all the requisites of good food, with the addition of a specific excitant action

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on the nervous system and brain that entitles coffee to the appellation bestowed on it by Rousseau, "boisson intellectuelle."

The ordinary miserable preparation of coffee so extensively used as food, deficient in proper alimentary principles, by taking away appetite, by distending the stomach with a warm liquid, and thus impairing its digestive power, and by its agreeable aroma corrupting the taste, rendering more nutritious food unpalatable, tends to the ultimate impoverishment of the blood. This fluid loses its proper character, that of a concentrated solution of all the organic elements and products of the economy.

As a consequence of this condition of the blood, the waste of the tissues exceeds the repair; death-action is stronger than birth-action; disintegration of structure predominates over its re-formation. In time, this loss of balance tells: the organs are degraded from their primitive type; their functions are impaired, and the organism descends in the scale of development. There is an approach to inferior organisms, and to cold-blooded animals; or, rather, the system is kept permanently in what constitutes the cold stage, or tendency to collapse in febrile diseases.

In this state, individuals suffer from a variety of vague, anomalous symptoms, characterizing no definite disease. They are always ailing, complaining, suffering, but not absolutely sick. They are miserable themselves, a plague to doctors, the prey and victims of quacks.

In this condition of the economy, the temperature is low. Dynamic force, which is identical with heat, is equally depressed; and, consequently, the mechanic or muscular power is at zero, and the offices of the economy depending on it are imperfectly performed. The circulation is feeble, digestive movements slow and defective; languor and exhaustion prevail. Exercise augments the evils by expending the forces more rapidly than produced, and the nervous functions are in a state of perturbation or depression. These disordered states are the results of a slow inanition or starvation, not suspected, because food is taken to the full repletion of the stomach; yet still it is starvation, for the blood does not possess the elements for heat and nutrition adequate to the full energy and the consumption of life-action. These cases are not remediable by medicine; they can be relieved only by a restoration of the digestive functions, and a return to a wholesome and appropriate diet.

Cases of this character have augmented, in our towns and cities, and it is believed in the country, particularly amongst women, and in the industrious and labouring classes, in the last ten or fifteen

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years, most rapidly. The neuroses, as gastralgia, different visceralgias, and other forms of neuralgia, are now quite as common amongst those classes, if not more so, than they were formerly amongst the luxurious and idle, to which they were almost exclusively confined.

A suspicion has arisen that this circumstance is to be attributed to the perversion of the use, as food, of tea and coffee, from their proper employment as nervous excitants and cordials, which are their appropriate properties. On inquiry, it is almost uniformly found, at least in the observations of many medical practitioners, that the greatest sufferers from these disordered states are the inconsiderate consumers of tea and coffee, who substitute them largely for food.

It would extend this inquiry too far to enforce the above views by relations of specific cases. A large number could be cited as strongly illustrating their correctness.

The practice of giving tea and coffee to children at their meals cannot be too strongly reprehended and discountenanced. In the first periods of life, the most nutritive food, rich in plastic elements, and capable of favouring the highest organization, is that which is required for growth and development. In the first fifteen years, nature is employed in constructing and perfecting the mechanism of life, fitting it for the conflicts, the exertions, the labours it must encounter and undergo in the struggles and difficulties of the great arena of the world, as well as with exterior malignant influences hostile to its existence, to which it is incessantly exposed. Without good materials there cannot be produced a good fabric.

Whatever tends to excite, to render irritable, or to develop unduly the cerebral structure and functions in children, is of necessity injurious. The bills of mortality show the fearful ravages in the early years of life from cerebral disease; and the foundation of most of the neurotic diseases and of ill-health in adult life dates from the abortive efforts of nature to build up substantial organs from the paucity and poverty of the building materials, or the abnormal direction imparted to nutritive action by over-excitement, in the commencement of development.

Tea and coffee being cerebral excitants cannot act otherwise than injuriously on children, in whom there exists no object for such artificial stimulation. Indirectly, they are mischievous by taking the place of food that contains all the elements and constituents of the fluids and solids of the organs and their products. They should be

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abolished from the dietary of children in all well-regulated families, and by parents careful of their children's welfare.

The analysis of tea is not complete, like that of coffee, by M. Payen. As far as known, it contains no alimentary elements, and cannot be classed with food. It is a purely cerebral excitant.

Though the grain of coffee has, amongst its constituents, alimentary elements, yet in the common slovenly process of torrefaction, the calorifacient principles are destroyed; and the plastic are also more or less decomposed. But when more carefully performed, and these principles are not materially injured, still a small portion only can be dissolved in the infusion or decoction made in the ordinary mode.

The infusions of tea and coffee cannot, therefore, be used as food, and be made substitutes for nutritious aliment, without a serious detriment to the economy. They are cordial beverages, and as such are grateful and useful, especially to those engaged in mental pursuits, and who lead sedentary lives. They must, at the same time, be combined with substantial nutriment, or the blood becomes impoverished, and fails to contain the materials for organic structure, and evolution of nerve-force.

In proportion to the degree of physical exertions, are the wear and tear of the solids, and the expenditure of the forces. The elements to maintain these in their normal conditions must exist in the blood, and the blood obtains them from the aliment in which they exist, through the digestive apparatus. Tea and coffee, largely drunk at their meals by those engaged in active and laborious pursuits, by excluding a due quantity of substantial food, rich in the plastic and force-producing elements, are more injurious to these classes than to the sedentary.

The inevitable consequences of this practice must be to undermine the constitution, to impair the health, to break down the forces, to cause various nervous sufferings, and finally to produce disability for labour.

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H.—14.

Letter from Professor WALTER R. JOHNSON, *Corresponding Secretary of the National Institute, on the introduction of Water and Gas into cities.*

WASHINGTON, *March* 31*st*, 1849.

DR. JAMES WYNNE,
Chairman of Committee on Public Hygiene, of the American Medical Association.

DEAR SIR: In your note of yesterday, you ask to be informed, whether, in my opinion, "the supply of water and gas to cities, as well as their drainage, should be under the direction of, and conducted by, chartered companies, or the city authorities; and the reasons which have inclined me to prefer the mode which I deem most advisable."

In reply to this inquiry, I would state that, in my opinion, all these important municipal matters ought unquestionably to be controlled directly by the city authorities, and in no case be allowed to be left in the hands of chartered companies. The reasons for this opinion may be briefly stated as follows:—

1st. When managed by the municipal authorities, who are—in every case to which your inquiry relates—assumed to be elected by, and amenable to, the people of the town or city, the object kept in view by the authorities will be likely to be that which is the true legitimate aim of all municipal regulations, viz., the greatest good of the greatest number.

2d. Under any trading corporation, however constituted or limited in its chartered privileges, the selfish motives of trade and speculation will inevitably find their way into the management and operations of the works. This is not a mere matter of conjecture, but rests on the experience of many communities, and is a just inference from the experience of those cities which have tried both species of direction.

3d. It is also deducible from the analogies of other great interests

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which are, by general consent, managed by the constituted authorities of the cities themselves, and not by corporate companies. Thus, the opening, maintaining, and cleansing of public highways, including the laying of pavements, and the construction of bridges, the maintaining of the public peace, the establishment and control of public market places, the support of public schools, the abatement of nuisances which would endanger public health, the establishment of public prisons, the management, in short, of every interest in which all, or a very great majority, of the citizens have a common concern, are cases directly in point. No one would think of intrusting these to corporate companies.

4th. To illustrate my views in the case of *water*, I may refer to the experience of the city of Boston, where, in former years, a company, deriving water from an inadequate source, undertook to supply the citizens with that indispensable material, and continued to receive compensation for such supply long after it had ceased to be able to meet the demands of the public, or the necessities of its customers, until, at length, the urgent wants of the public rose to a pitch which compelled the city to resort to means for obtaining that supply not subject to the operations of a trading corporation.

5th. I may refer to the corresponding experience of many towns in England, as exposed in the elaborate reports of the Royal British Commission on the health of towns, to prove that the community there, when supplied with water by corporate companies, especially where these companies enjoy monopolies, has, in almost every instance, been inordinately taxed for inadequate supplies.

6th. But not only the individuals who pay water-rents are liable to be imposed upon both in price and quantity, as well as the quality of the water furnished, but those supplies are particularly liable to be inadequate which are afforded by corporate companies to the city authorities for *public uses*, such as the washing of streets and the extinction of fires.

7th. On the contrary, we have the experience of those cities and towns of our own country, which have erected water-works under municipal direction, to prove the great utility of that species of management. Among these cities, Philadelphia has had the largest experience, having tried it about fifty years; New York about one-seventh of that time, and Boston for a few months only; and yet it would, I apprehend, be an exceedingly difficult task to persuade the inhabitants of either of these cities to abandon their present system,

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and again accept such supplies of water as chartered companies would afford.

8th. To secure public health, the most abundant streams of water for cleansing streets and sewers, and for supplying private baths, ought to be at the command of every individual in a large and densely peopled city, and growing as rapidly as American cities now are. They cannot too early bethink themselves of this element of health, comfort, temperance, and purity. Public baths are no proper substitutes for the private bath-room in one's own dwelling; any more than the public pump is a substitute for the private hydrant, always ready to send forth its gushing stream at our own door.

9th. If, for the purpose of preventing imposition by a monopolizing company, two or more corporations be established for supplying the same district, they must, of necessity, cross the direction of each other's works, must come in collision, and excite at first a competition ruinous to both parties, and end with a combination between themselves to keep up prices, not less oppressive to the water renters than those of a monopoly, the purchasers of water eventually paying the costs of all their conflicts and litigation. All these results have been repeatedly produced in foreign countries, if not in our own.

10th. In managing water-works, gas-works, or sewerage, by corporate companies, not only will the pecuniary interests, but often the personal convenience, of the corporators be studied, to the neglect of the general safety and comfort of the citizens. When works which create nuisances, or any serious annoyance, are to be established in the heart of a large city, the plea of public utility will often be urged in favor of locating them on sites where the annoyance will be most seriously felt; on ground which, perhaps, the *company* find it convenient to purchase, but which the municipal authorities would not have felt authorized to occupy for such a purpose. The effluvia of gas-works are well known to create great annoyance to the residents in the immediate vicinity. Yet they are not unfrequently located in the very heart of a large city.

11th. The systems of under-ground drainage, from the days of the ancient Romans to our own times, have been justly regarded as objects of municipal regulation. The "*cloacæ*," or sewers, in Rome, were of such magnitude, that a rider on horseback, or a broadly loaded vehicle, or a galley with its oars, could pass along their channels. They were, in short, comparable to our modern canal or railway tunnels, and extended with many ramifications under all the

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principal streets. Appropriate officers were specially charged with the superintendence and management of these important public works.

13th. Whatever may be thought of the supply of water and gas to cities, there cannot, it seems to me, be two opinions as to the propriety of placing the drainage entirely under the control of municipal authorities. It is one of those things which is perfectly identified with the whole physical character and social condition of the city, and no power short of that which controls all its other affairs ought to be allowed to regulate this. Now, if it be once admitted that under-ground drainage is necessary to a town, and that the public good requires it to be under the municipal rule, it follows, almost as a corollary, that every other operation requiring extensive under-ground operations, or the opening of fosses, ought, in like manner, to be subject to the same control. If one of these species of works belongs to the public, and another to individuals or companies, it is evident that one may be liable to great injury from the operations of another, and gas pipes, water pipes, and sewers will be crossing each other's paths. The prevailing inducement for extending the works of either kind into any given part of the city will be, not the accommodation of the public, but the obtaining of a maximum profit.

14th. Another reason for preferring *public* management of those works which afford supplies of such objects of prime necessity as light and water, is that the public management will always, in the long run, afford the supply at a cheaper rate than the private corporation. In the city of Philadelphia, where both water and gas-works are under municipal control, it is believed that water and gas are furnished to the consumer at lower rates than in any other city in the country. The works are so situated, and so constructed, as to create no serious annoyance in the streets or elsewhere. While the Philadelphia Gas Works were, during the first five years of their existence, under the control of stockholders, the cost of gas to the consumer was more than fifty per cent. higher, and the quality of the gas much lower than it is at this time, when they have changed owners, and are controlled even indirectly by the city government. A more direct management and still further reduction in price are loudly called for by the citizens. Even at the present price ($2 25 per 1000 cubic feet), the works yield a large annual profit above the cost of making and disposing of the gas. In some other cities of the Union, it is true that corporate companies have succeeded in

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imposing *two, three,* and even *more than four times* this rate of charge on the consumers of gas. Under public control, and with proper management, the authorities of our large towns might erect gas works that would speedily relieve their citizens from these monstrous impositions. Throughout the West and South-west, in particular, where coals of the best quality for making gas are abundant and cheap, as well as iron for the establishment of works, there is no sufficient reason why abundant and cheap light should not be matters of universal enjoyment.

I am, very respectfully,

Your obedient servant,

WALTER R. JOHNSON.

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H.—15.

Letter from Dr. Thomas Harris, *Chief of the Bureau of Medicine and Surgery, Navy Department, on the Use of Disinfectants in the Navy.*

Navy Department,
Bureau of Medicine and Surgery.
May 16*th*, 1849.

Sir: I have to acknowledge your communication of the 28th ult., requesting information as to the result of inquiries and experiments, instituted by this Bureau, for the purpose of testing the value of various disinfectants, as applicable to ships and hospitals.

The only disinfectants which have received the special attention of this Department, are the nitrates of iron, zinc, and wood fibre, as prepared and applied by Mr. Robert Grant, and the "Disinfecting Fluid" of M. Le Doyen.

The Bureau of Medicine and Surgery assumed cognizance of Mr. Grant's operations on the 24th of June, 1848: prior to which date, he had been employed on board various vessels of the U. S. squadron, in the Gulf of Mexico, under the direction of the Bureau of Construction, Equipment, and Repairs. As the results there obtained had been imperfect and unsatisfactory, a board of medical officers, consisting of Surgeons Waters Smith, Thomas L. Smith, and Passed Assistant-Surgeon George Maulsby, were immediately detailed at the Navy Yard, New York, with orders to examine, and report upon, his whole theory and process of disinfection. The views of this board, as elicited by Mr. Grant's propositions and experiments, and communicated in the following extracts from their report, dated October 23d, 1848, will explain the course of the Bureau in declining, as it has done, all further connection with the operator.

Propositions of Mr. Grant.

"1. He considers the presence of hydrogen to be necessary to the propagation or spread of infectious diseases.

"2. The matter of contagion or infection, whether the result of animal or vegetable decomposition, or of whatever causes, unites

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atom to atom with the hydrogen thus present, and is by it buoyed up and carried through the air; and produces disease by being inhaled into the lungs.

"8. In the natural (proximate) decomposition of vegetable fibre, hydrogen is evolved, in the first instance. After the hydrogen has ceased to be evolved, ultimate decomposition takes place; the oils, &c. of the wood take up oxygen from the atmosphere, from water, &c., and give off carbonic oxide gas. This gas, passing into the atmosphere, absorbs another portion of the oxygen therefrom, forming carbonic acid; and, while taking up this second equivalent, it acts chemically upon the miasmatic bubble floating in the air, and uniting with it, neutralises, or destroys it."

Preliminary Experiments, showing the Manufacture of Mr. Grant's Disinfecting Agents.

First.—Add nitro-muriatic acid (in four parts of water) to vegetable fibre; sawdust being the material used.

Formula.—The hydrogen of the wood is driven off, the acid uniting with the essential oils of the wood by a process of electric affinity.

Second Experiment.—Add nitrous acid to iron or zinc, forming nitrate of zinc or iron.

In this manufacture, a Woolf's apparatus is used to receive the nitrous fumes given off, that they may not be wasted. In conclusion, combine the wood and nitrate of iron or zinc.

This is the disinfecting material used.

The material thus prepared Mr. Grant proposes to scatter about in the holds of ships, and other foul or infected places; and in what has now been stated consists, as admitted by himself, his whole theory and practice of disinfection.

His theory of the mode in which infection is disseminated is entirely hypothetical, and has the farther disadvantage of being neither original nor new. Some half a century since, Dr. Garnett, of Manchester, suggested that hydrogen gas was probably the vehicle by which the morbific matter of contagion was carried about, and, upon that supposition, explained the alleged efficacy of the acid fumigations in destroying it.

The fumes disengaged from Mr. Grant's prepared sawdust are neither more nor less than those of nitrous acid and chlorine; that is to say, precisely what has been proposed and extensively used by Carmichael, Smyth, Moreau, and others, at least as far back as 1780.

The Board consider his process to be an unscientific mode of arriving at well-known chemical results; and that the active agents

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in his preparation are those which have been in use, long since, in our own and foreign navies, and which have been very generally laid aside, for reasons of some cogency.

As a deodorizing agent for "apartments crowded with sick, decomposing animal and vegetable substances, vaults, sewers, and other receptacles of noxious matters," they believe it to be inferior to the chloride of zinc of Sir William Burnett, or the nitrate of lead of Le Doyen; these last have, at least, the advantage of not substituting one bad smell for another.

Entertaining these views, they cannot recommend its "general adoption into the naval service."

The "Disinfecting Fluid," or solution of nitrate of lead, of Le Doyen, was first submitted for experiment at naval hospitals in November, 1848, by order of this Bureau. The cases at these institutions have thus far afforded but few opportunities for its application; but in such as have occurred, the results have been favourable with regard to the deodorizing power of this material.

Surgeon William F. Patton, in charge of the hospital near Norfolk, Va., informs me that, in two instances of foul ulcers, in which the fluid had been employed, the odour was completely destroyed; and its effect was similar in the apartments occupied by the insane.

Surgeon R. J. Dodd, at the Hospital of the Naval Asylum, Philadelphia, says, "In several cases, it has been applied with benefit to ill-conditioned ulcers. Its efficacy in removing offensive odours is complete."

I subjoin, also, the opinion of Surgeon Waters Smith, as given in the following letter:—

U. S. Naval Hospital,
New York, January 3d, 1849.

Sir: I have to acknowledge the receipt of your letter of the 15th ult., by the hands of Dr. Boyd, of Brooklyn.

The small quantity of "Le Doyen's Fluid," furnished by order of the Bureau, is exhausted, and it is my intention to ask for a further supply in my requisition for the present quarter.

Our opportunities for testing its properties, in this establishment, thus far, have not been great; but, such as they have been, they tend to confirm the results of the more extensive experiments made in England by Dr. Leeson and others. For instance, we had, at one time, nine small-pox patients secluded in two rooms of moderate dimensions, in which they were kept until the disease had run its course. A few ounces of the fluid, sprinkled occasionally in each

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apartment, kept them perfectly sweet, entirely destroying the peculiar and offensive odour connected with certain stages of that disease. We have had similar proof of its power in correcting the fetor of water-closets, night vessels, &c.

Even with this slight experience, one may venture to pronounce it a valuable agent in the hands of the hospital surgeon; and that it must prove equally so on ship-board may be inferred from its chemical composition, viewed in connection with the gases most frequently and copiously generated in the holds of vessels. One marked advantage which it possesses over the rest of the class of (what is loosely called) "disinfectants," is that it is in itself inodorous.

It is my purpose, whenever occasion offers, to try its efficacy in correcting certain morbid discharges, and as a local application in various surgical diseases.

I am, with much respect, your obedient servant,

WATERS SMITH,

Surgeon.

DR. THOMAS HARRIS, *Chief of the Bureau of Medicine and Surgery, Washington.*

With a view to extend these investigations, and to test the operation of this material in sea-going ships, a special circular was addressed, on the 2d inst., to surgeons of navy yards, authorizing and advising its use at naval stations, and on board all classes of U. S. vessels. As a report of each medical officer's experience will be required, it may be in my power at a future time to communicate more conclusive information.

In closing this statement, however, I would observe that, while desirous of affording every facility for averting and controlling disease, it has never been either the policy or wish of this Bureau to give to such agents any other than an accessory importance. By a rigid observance of that internal police which the principles of naval hygiene recognize as indispensable to the preservation of health on ship-board, it is believed that the necessity for recourse to "disinfectants" would be almost entirely, if not wholly, averted.

I am, with much respect, your obedient servant,

THOMAS HARRIS.

JAMES WYNNE, M.D., *Chairman of Committee on Public Hygiene, American Medical Association, Baltimore, Md.*

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I.

REPORT OF THE COMMITTEE ON ADULTERATED AND SOPHISTICATED DRUGS.

THE Committee, appointed at the last annual meeting, on adulterated and sophisticated drugs, were required—

1st. To prepare a memorial to Congress, asking that a law might be passed to prevent the importation of such articles.

2d. To report, at the next annual meeting of the Association, the nature and extent of the home sophistication and adulteration of drugs, as practiced by wholesale and retail dealers.

3d. To suggest the best means for the prevention of the evil in its various forms.

Your Committee performed the first named duty immediately, and the memorial as prepared by them was adopted, and presented to Congress. They now have the pleasure of congratulating the Association on the success of its labours. The evils complained of are remedied. The country is no longer flooded with adulterated and worthless drugs, prepared in foreign laboratories, and the sick and suffering are effectually secured against their deceptive, and sometimes deleterious, effects.

Few, if any of us, had formed any adequate conception of the enormous impositions practiced by foreign speculators stationed in our large cities, or travelling through the country. The College and Journal of Pharmacy, of Philadelphia, and the New York Academy of Medicine and College of Pharmacy, had noticed the existing evils. At length, some startling representations were made of them by Dr. M. J. Bailey, examiner of drugs, &c., at the New York Custom House, to whom the country is indebted more than to any other individual, not only for detecting and exposing the frauds that were practiced, but also for his fearless and faithful manner of executing the laws enacted for their prevention. According to this gentleman's statement, the amount of drugs, medicines, chemical preparations, &c., entered at the New York Custom House, during

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the year 1847, was nearly one million and a half of dollars. More than one-half of many of the most important chemical and medicinal preparations were worthless, and often dangerous. Within the short period of about five months after the law petitioned for by this Association went into operation, the same examiner, Dr. Bailey, condemned and rejected, as adulterated or worthless, no less than 13,000 lbs. of rhubarb, 2500 lbs. of opium, 7200 lbs. of jalap, 1414 lbs. of gum gamboge, 1400 lbs. of senna, 30,000 lbs. of spurious yellow bark, 3000 lbs. of iodine, 1700 lbs. of gum myrrh, all of which, but for this law, would have found their way throughout our extensive country, and into the stomachs of the sick and suffering. It has been justly remarked by a distinguished Senator in Congress, that, if the National Medical Association achieved no other reform than this, its labours would entitle its members to the gratitude of the country. The beneficial results of the law have certainly surpassed the most sanguine expectations of its friends.

The Hon. T. O. Edwards, whose valuable report at the last annual meeting awakened the attention of the Association, and induced them to memorialize Congress in favour of the law, and who was indefatigable and untiring in his exertions for its enactment, was, after a lapse of six months, employed by the Secretary of the Treasury to visit the principal ports, in order to ascertain its practical workings. At the close of a detailed report to the Secretary, he arrives at the following conclusions as to its beneficial effects :—

1st. An elevation in the quality and purity of the medicinal agents imported.

2d. An entire prevention of adulterated and deteriorated drugs, &c., from entry and use.

3d. No embarrassment to the honest importer and dealer.

4th. An increased revenue.

5th. Protection to the medical profession and community, an increasing confidence, and an earnest desire on the part of the people for the continuance of the law, and its faithful application.

Dr. Bailey informs me, within a few days past, that the knowledge of the existence of the recent law, and of its rigid enforcement, has prevented foreign consignments to agents in this country, insomuch that not one-tenth of the spurious and adulterated articles arrive in our port, that there did, a year since, before the passage of the law.

The next subject requiring the consideration and report of your Committee is the home adulterations and sophistications of drugs.

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The nature and extent of the evil. This was probably expected to occupy their attention rather than the foregoing, relating to foreign drugs and medicines. But the two are intimately connected. Of late years, seven-eighths of the frauds and sophistications have been practiced in foreign articles. An effectual stop is now put to their introduction and sale. Home adulterations have been conducted on a comparatively small scale. It was more profitable to import from foreign countries, where deceptions were conducted on a large scale, and with the advantage of greater experience and adroitness. Respecting home frauds, your Committee have made inquiry of wholesale and retail dealers, without obtaining much exact information. They have found them unwilling to act as informers against the implicated, or to give any statements except of a general character. These related chiefly to articles of American product, a few of which will be enumerated.

Castor Oil.—This article is made chiefly in Illinois, Ohio, and Kentucky, and is brought down the Mississippi and to the Atlantic cities, in barrels, in a pure state, and is there adulterated with lard oil, and distributed to retail dealers. The sensible qualities of this article are not impaired by it; the taste is rather improved. It might, therefore, have continued unsuspected, had it not been discovered in attempts to make *lustral*, which is a combination of castor oil and alcohol of 95 per cent. It was found that the combination was not complete, that a part of the oil was insoluble. This proved that an animal oil was mixed with the castor oil, at the same time that it discovered a sure test of the adulteration in all such cases, which every purchaser of castor oil can easily apply. It is only necessary to shake some of the oil with alcohol of the strength of 95 per cent.

Epsom Salts is an article so low in price that one would suppose the inducement too small to lead to its sophistication. But the consumption is great enough to render it profitable to substitute what druggists term bay salt for the pure Epsom. It is made from seawater at salt works, and can be had at half the price of pure Epsom. Country dealers and grocers, who in their purchases look more to price than to quality, get most of their supplies in this inferior article. The deception is readily discovered by comparing the form of the crystals with specimens of Epsom salts known to be pure. The impure article is also moister to the touch, and imparts dampness to the vessel containing it.

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Essential oils are adulterated with alcohol. The fraud can be detected by mixing equal quantities of the oil and water in a test tube or vial. The alcohol unites with the water, and leaves the oil to occupy a less space in the tube, proportionate to the degree of adulteration.

Vegetable powders, as ipecac., rhubarb, jalap, &c., the purchaser is very liable to be deceived in, unless he knows and can confide in the dealer. In all purchases of these articles, the country physician should obtain them in the root, and pulverize them himself. *Alcoholic tinctures* he should also prepare.

There are, however, many chemically prepared medicines whose adulterations cannot easily be detected by their sensible qualities, or any easy process of analysis. Morphine may contain five, ten, or even twenty per cent. of amygdalin yet undiscoverable. "Who can say whether blue pill mass contains its full equivalent of mercury, whether hydriodate of potash is pure or is adulterated with carbonate of potash or other substances, whether quinine contains salicine, mannite, or sulphate of barytes?" Most or all of these frauds would require an experienced chemist and much labour to detect them.

Other articles are often adulterated, of which we have only time to name a few.

The volatile oils are adulterated with spirits of turpentine.

Calomel with gypsum and chalk.

Cream of tartar with gypsum and alum.

Capsicum with curcuma.

White wax with tallow, &c.

The list might be extended, for indeed almost every article in the shops is liable to adulteration. Many respectable dealers keep two kinds of articles, one to suit customers who go for low price without regard to quality, and another for those who insist on purity without regard to price.

Your Committee would not implicate all or any considerable portion of druggists in the charge of fraudulent dealing. On the contrary, they believe most of the houses of good reputation are ready and anxious to aid in a reform of any abuses that exist. Many of them pride themselves on the purity of their drugs, and especially their chemicals, and their brands and labels are preferred to those of any foreign house. Sulphate of quinine manufactured in some

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Philadelphia houses is preferred to any in the world; perhaps equally good is prepared in our other large cities. It is often irresponsible persons and pedlers that commit many of the petty frauds.

There are enough, however, ready to engage in such dishonest work on a large scale, and so great is the temptation, now that foreign adulterations are excluded from our ports of entry, and the prices of medicines consequently enhanced, that it will require the utmost vigilance of this Association, and of the public, to prevent their carrying it on.

In an elaborate paper, addressed, within the week past, to the New York Academy of Medicine, by Dr. Bailey, of New York, are the following remarks:—*

"To suppose that we have none among us engaged, or who will engage, in the preparation and sale of spurious and adulterated medicines, is to place a higher estimate upon the conscientious scruples of that portion of our speculating and trading community with whom the almighty dollar is paramount to all other considerations than I am willing to concede. Even at this early day, the fraudulent work of their hands is but too visible. Within the last month or two, sulphate of quinine in considerable quantities, bearing the label of Rosengarten and Denis, Philadelphia, has been found in market, adulterated to the extent of some twenty or twenty-five per cent. The same may be said of quinine bearing the name of the London Alkaloid Company, London, as well as that bearing the name of Pelletier, Delondre, and Lévaillant, of Paris. Now, these frauds were perpetrated by our own people, or among our own people, and after the article, too, had come into the hands of the purchaser. They were not done by the manufacturers. Each of the above-mentioned firms stands too high, and deservedly so, to warrant even a suspicion of such unpardonable baseness. The material used for the adulteration of the quinine was found, on analysis, to be mannite and sulphate of barytes in about equal weights. The latter article has long been used for this purpose, but not until quite lately has mannite been detected in sulphate of quinine. It seems to have been ingeniously substituted for salicine, and a somewhat similar alkaloid prepared from the poplar bark, which articles have heretofore been extensively used for like purposes.

"I have in my possession," continues Dr. Bailey, "a sample of

* I have to acknowledge the kindness of Dr. Mott, President of the New York Academy, for sending to the Committee the paper of Dr. Bailey, from which the extract is made.

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French sulphate of morphine adulterated by the admixture of some thirty per cent. of amygdalin, an article which, in this combination, defies all the ordinary tests for its detection; and which, like the mannite in the quinine above mentioned, can only be found and distinctly characterized in the mother-liquid after the solution and re-crystallization of the true saline portion of the sophisticated compound."

"Will pure drugs, imported in their crude state, remain so in this country?" Dr. Bailey says, "I think not. It has, heretofore, been too frequently found, that drugs become astonishingly reduced in strength and purity during their transition state from root, bark, gum, &c. to powder. Prime fresh drugs are no doubt sent to the drug-mill; but, somehow or other, by falling into bad company I suppose, they are very apt during their stay to lose *their virtue*, and, as a matter of course, are returned to their owner with a character decidedly tarnished." Drug grinding or powdering requires a searching and thorough reform, as much so as "the mysteries and trickery of the laboratory, when in skilful but dishonest hands."

What are the best means of preventing the evils complained of, in their various forms?

In respect to imported articles, Congress acted promptly and efficiently in giving us all that our memorial asked. But it can go no farther, can take no cognizance of home adulterations.

It has been proposed to apply to the State legislatures for the enactment of stringent laws against such frauds. But there are reasons why this Association should abstain, for the present, from any such applications. Several of the States have no delegates here through whom to memorialize. Then there would be no uniformity of action in the legislatures of thirty sovereign and independent States. The results of their legislation, when collected and compared, would resemble a piece of mosaic. In addition to this, the amount of information, thus far collected, is not sufficiently definite or extensive to justify immediate legislative measures.

The undersigned, after mature reflection, have concluded that much may be done by collecting more extensive and accurate information, and reporting it at the next annual meeting of the Association. For this purpose, a larger committee than the present one should be employed. The five members of this Committee, and one of these in Vermont, and another in Rhode Island, where few of the

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evils exist, and no representative from the great West, where most of the fraudulent articles are sent, are too small a number to perform the duty assigned them of collecting all the important facts bearing on the subject. There should be a committee raised of at least two from each State, to closely scrutinize powdered drugs, and all the medicinal preparations found on sale throughout the country; to correspond with the Colleges of Pharmacy; and to have an eye to the grinding and powdering drug-mills, and report at the next annual meeting of the Association.

When such a surveillance is known to exist in each State, all persons, however disposed to manufacture and sell spurious drugs, would be deterred from it by fear of detection and exposure.

Another means your Committee would recommend, would be to diffuse information among the people generally as to the best means of detecting frauds in drugs and medicines. For this purpose, they had it in contemplation to recommend the publication of a small manual, in pamphlet form, containing a list of all counterfeit medicines (like the pamphlets now in use respecting counterfeit bank bills), which might give some plain instructions, free from unnecessary technicalities, and the most simple and certain methods of detection. But your Committee are pleased to learn that the College of Pharmacy of Philadelphia contemplate favouring the public with just such a publication. This, if done under the auspices of the National Medical Association, would have a decided effect in repressing, if not entirely stopping, the home adulterations of medicines.

In conclusion, therefore, the undersigned recommend that a committee, consisting of two delegates from each State here represented, be appointed by the President, to note all the facts that come to their knowledge with regard to the adulteration and sophistication of drugs, medicines, chemicals, &c., and to report them at the next annual meeting.

Secondly, they recommend that the President sign, and forward to the Philadelphia College of Pharmacy, a letter, stating that the Association are pleased to hear of its laudable intention to prepare and publish some simple directions for detecting adulterations in medicine, adapted to the understanding of the people generally, and would be highly gratified could they welcome its appearance before the next annual meeting.

All which is respectfully submitted.

USHER PARSONS, *Chairman.*

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J.

REPORT OF THE COMMITTEE ON INDIGENOUS MEDICAL BOTANY.

THE undersigned, Chairman of the Committee appointed by this Association at its annual meeting in 1847, and by resolution re-appointed in 1848, for the purpose of investigating the composition and medicinal qualities of our indigenous remedies, would respectfully report as follows:—

From the investigations of your Committee, it would appear that there are, in the United States, not less than one thousand plants reputed to possess medicinal qualities of value in the treatment of disease. Of these, however, only about one hundred and fifty have had their properties so investigated as to entitle them to a place among the well-known and reliable articles of the Materia Medica; and even the therapeutic or physiological action of many of these is but imperfectly understood. Repeated experiments have shown them to be beneficial in certain diseases or stages of disease; but why they are so, or through what medium, or organ, or set of organs they exert their influence, is still a mystery.

Our knowledge of the large number that are merely reputed to possess medicinal qualities is of the most vague and indefinite character. Thus, out of two hundred and eighty-six native and naturalized plants, named in Griffith's recent valuable work on Medical Botany, there are one hundred and fifty-six concerning which we are simply told that they are *said* to be valuable in this way or that; or they are *said* to have been used by the *Indians* thus and so. These facts show, at once, both the extent of the field which lies before us, and the vast amount of careful, accurate, and well-applied labour that it calls for. And, though both the utility and needfulness of this labour are questioned by some, who consider the resources of our Materia Medica too abundant already, we shall only stop to remind such of the fact that, although the whole number of articles belonging to our Materia Medica may be large, yet the

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number directly accessible to the profession in any given locality is comparatively limited.

We are aware that this will appear of no consequence to those members of the profession who, practicing in our large cities, are in the habit of sending all their prescriptions to the apothecary, and who consequently may not handle an ounce of medicine per annum. But we are satisfied, both from experience and observation, that many advantages would result from a thorough knowledge of all medicinal substances; so that physicians of every locality should be able to obtain a very large proportion of their vegetable remedies, fresh and of *known* strength, from their own immediate neighbourhoods. If this practice could be made general throughout the profession, not only would a larger number of cases be speedily and safely cured, but many of the so-called uncertainties of medicine would disappear. This topic, however, was sufficiently discussed in our report of last year; and its importance will be made more and more manifest by the annual reports of the inspectors of imported drugs, by which the profession will see, with astonishment, the immense amount of adulterated and worthless trash that has been palmed off as medicine for several years past. We have already intimated, that a more perfect knowledge of the modus operandi of medicines, and the ability to procure them of uniform strength and purity, would greatly contribute to our success in the treatment of disease. But, while hundreds are constantly and earnestly prosecuting their investigations into the departments of Physiology, Pathology, and Morbid Anatomy, comparatively few institute any well-devised investigations into the modus operandi of medicines, or their exact value in the treatment of any of the various forms of disease. And yet, when we reflect that medicinal agents are the instruments by which the physician undertakes to accomplish certain objects, it would seem that he should be as familiar with their mode of action as the mechanic is with the working of his tools. To practice medicine with satisfaction and certainty, the physician must be able to recognize the location, the extent, and the nature of any given disease; and then understand the modus operandi and effects of remedies so clearly, that he can adapt his medicine, not only to the nature and precise stage of the disease, but also to its location and the general condition of his patient. If he would do this, it is necessary that his knowledge should extend beyond the mere fact that one medicine will puke, another purge, and a third produce diaphoresis, because all these effects, and others still, may be produced by

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the same medicine acting on different conditions of the system. These are, in fact, only symptoms or effects of an antecedent influence exerted by the medicine on the blood or some one of the organized tissues of the human body.

It is not many years since diseases were nosologically arranged in accordance with the prominent symptoms which they presented. But, just in proportion as the cultivators of physiology and pathology have revealed to us the nature and seat of diseases, these nosological arrangements, founded on mere effects or symptoms, have given place to a more rational nomenclature, indicative at once either of the nature or seat of the disease, or of both. And this constitutes one of the marked advances in medical science. The arrangement of our Materia Medica stands very much in need of a reform of the same description. Instead of looking only to the ultimate effects of any given remedy, we should first inquire upon what portion of the system it makes its impression? Second, What is the nature of that impression? Third, What are the ultimate effects resulting therefrom? And fourth, What are the indications which it is calculated to fulfil in the treatment of disease.

To enter upon such an investigation successfully, we must first have a clear conception of the various ways in which the system, or any of its parts, is susceptible of being impressed by medicinal agents. Thus, an article may produce its effects solely on the part to which it is directly applied. The various caustics are familiar examples of this kind. Or, on being absorbed, it may exert a directly modifying influence on one or more of the elements of the blood; and this change in the blood may induce other, and more obvious results. Or it may circulate through the blood unchanged, and make its impression on some portion of the nervous tissue, modifying its function, and thereby developing its own ultimate effects. Thus, we see clearly, that every medicinal agent which does not produce a direct mechanical effect on the part to which it is applied must produce its primary action either on the constituents of the blood, or on some portion of the nervous tissue, or on both. Having ascertained the part on which a medicine produces its primary impression, the next inquiry should be, what is the nature of such impression? If it alters the constituents of the blood—which constituents are so altered, and what are the consequences of the alteration? If it acts on the nervous tissue, does it exalt or diminish its energy? and on what particular portion does it act?

The usual mode of testing the action of medicines, by simply ex-

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hibiting them in certain cases of disease, is very imperfect in its results, for it is a well-known fact that the same diseases often arise in constitutions very dissimilar, and under circumstances the most diverse. Hence, it is no uncommon thing to find one practitioner reporting a certain article to have been very successful in the treatment of a certain number of cases of disease, while another tries the same remedy in cases of the same disease without any beneficial result. And thus our works become filled with the most contradictory statements, far better calculated to produce confusion and medical skepticism than clearness and certainty in the treatment of disease.

Physiology teaches us that the nervous system of animal life regulates and controls all the intellectual and voluntary motions and sensibilities of the system, while that of organic life equally controls all those organic motions and sensibilities constituting what is generally included in the processes of respiration, circulation, nutrition, and secretion. The microscope and analytical chemistry enable us to ascertain the condition of the blood and other fluids of the system both in health and disease. Hence, in continuing the investigations which we had hardly begun in our report, which was kindly published in your volume of Transactions of last year, it has been our endeavour, as far as possible: 1st, to ascertain the particular constituent of the body on which any given agent makes its impression; 2d, the nature of the impression made; 3d, the secondary effects of such impression on other constituents or organs with which the part primarily impressed may be either directly or indirectly connected; 4th, the therapeutic indications which it is calculated to fulfil; and finally, our knowledge of its value and influence derived from its direct application in the treatment of disease.

Before proceeding to examine other native plants, it may be proper to remark, that further experience in the use of those examined in our former report has only served to afford additional evidence of the correctness of the observations then made.

Sarracenia, or side-saddle flower.

According to the natural arrangement, this species belongs to the class of Endogenes, and order Sarraceniaceæ, and is found exclusively on the bogs of North America. It belongs to the class Polyandria Monogynia of Linnæus. Its flowers are solitary and terminal, calyx double, persistent, exterior small, three-leaved, the interior five-leaved, petals five, deciduous, erect, stigma very large,

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clypeate, peltate. Leaves radical, alternate, operculoid, within retrorsely pilose.

Six varieties of this plant are found in the United States, five of which are limited to the Southern States; but the sixth, the Sarracenia purpurea, is found very abundant as far north as Hudson's Bay. The only species which have been medically examined are the S. variolaris and flava, both natives of South Carolina, Georgia, Louisiana, and Florida.

They are found most abundantly on the bogs in wet places, throughout the pine forests. During the past year, the medicinal qualities and composition of these two varieties have been thoroughly examined by the learned and industrious member of the Committee from South Carolina, Dr. F. P. Porcher, to whom we are principally indebted for the following facts. The root of the plant, or that portion of the stem below the surface of the ground, is the part used. Specimens of this were submitted to Dr. C. U. Shepherd, by Dr. Porcher, and, as the result of his analysis, he says: "From the foregoing examination, it may be inferred that, besides lignin, colouring matter, and traces of a resinous body, it contains an acid salt of lime (the acid being neither the tannic nor the gallic, but possibly one altogether new), and a salt of some alkaloid, related perhaps to cinchonia, which, should it prove new, may be called the *Sarracenia.*"

From a further examination by Dr. Porcher, it was evident that the bitter and astringent qualities of the root were very imperfectly extracted by water; the *decoction* appearing even more destitute of these properties than the cold infusion. Starch was evidently present in considerable quantity, and a slice of the fresh root laid on litmus paper gave a decidedly acid reaction. Dr. Porcher several times took the root, both in a fresh and dried state, for the purpose of ascertaining its physiological action on the system. The result of one of these experiments he states as follows: "Dec. 4th. We again commenced experimenting with it. It had become dry, having been rolled into pills of three grains each; of these, we took sixty (180 grs.) between ten and twelve o'clock P. M., upon a comparatively empty stomach, swallowing them at intervals of eighty minutes, six or eight at once. Its diuretic action in this instance was frequently repeated, the secretion being increased in quantity, pure, limpid, and colourless, with scarcely any sediment after several hours' standing.

"Its action on the stomach resembled that following its first em-

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ployment, being attended with some of the same phenomena; a feeling of emptiness was produced in the course of an hour; after retiring to bed, the whole abdominal region was in a state of commotion, extending along the tract of the ascending and descending colon, all of which appears to participate in a kind of rolling motion produced by it; to these, were added involuntary rumbling sounds, as if the entire alimentary tube was stimulated, and apparently forewarning a cathartic effect. We are led to believe that its astringent property prevented this result. There was also tenderness on pressure at the epigastrium.

"The feeling of congestion about the head, with irregularity of the heart's action, which *lasted for several days*, was again observed. Before morning, the pulse rose to 100 by the watch, resuming its usual frequency after a time. We were prevented by sleep, which was much disturbed, from ascertaining positively the co-existence of strange impressions on the sensorial functions. The general vigour of the digestive apparatus was increased; the appetite following, the next day, was unusually active, seeming to demand much more to satisfy its requirements; but there was a sense of pain about the stomach, like that following an inflammation, or that felt in the muscular tissue of a limb which has been overtasked." (See *Charleston Med. Journ. and Review*, vol. iv. No. 1.) In the first experiment, he took 140 grains of the fresh root, with essentially the same result as just detailed. The sense of fulness in the head, especially about the occipital region; the greater frequency of the pulse; the increased action or motions of the alimentary canal, accompanied by improved appetite and power of digestion, were uniform effects resulting in all his trials. And they point very clearly to the tissue on which the medicine makes its impression, namely, the gastric filaments of the organic or ganglionic system of nerves, through which the impression becomes transmitted to the whole of that system.

The nature of the impression being highly stimulating or excitant, we have a speedy increase in the action of the heart and arteries, and consequent sense of fulness in the head; increase of the muscular or peristaltic action of the whole alimentary canal; increase of organic sensibility, as indicated by the improved appetite and the increased glandular secretions. In a word, we have an exaltation of all the functions directly dependent on the organic nervous system.

No influence seemed to be exerted on the mental functions or any

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portion of the nerves of animal life. That the tenderness on pressure at the epigastrium was the result of simple increased organic sensibility, and not the direct result of an irritation produced by the root on the mucous surface, we think is evident from the accompanying increase of appetite and power of digestion; the latter, especially, being always impaired by mucous irritation of the stomach. If we are correct in the two preceding inferences, namely, that the sarracenia makes an impression on the nervous system of organic life, and that such impression is of such a nature as to excite the action and exalt the energy of this system, then the important therapeutic indications which it is calculated to fulfil are plain and obvious. Perhaps no morbid condition of the system is more common, in civilized society, than indigestion, costiveness, sluggish glandular secretions, &c., arising from an impaired condition of the organic nervous functions. Habits of over-indulgence, keeping late hours, confinement within doors, and such modes of dress as interfere with the process of respiration, and the consequent oxidation of the blood, are all so common, in almost all circles of society, that the morbid condition just named is met with at almost every step of the physician's life. It is very obvious, from the experiments just detailed, that the sarracenia is a remedy admirably adapted to meet the indications here required; that is, to increase the peristaltic motions of the whole digestive tube, to invigorate the circulation, promote the glandular secretions, and thereby improve both the appetite and power of digestion. Our knowledge of its effects from direct application in the treatment of disease, is comparatively limited.

We do not find the sarracenia spoken of as a medicinal plant in any of our works on Materia Medica or Botany.

According to Dr. Porcher, its use as a medicine commenced among the early settlers in the lower part of the State of South Carolina, including the parish of St. James Santee. It seems to have been a very popular remedy in that region for dyspepsia, sick headache, &c. In his article, to which we have already alluded, Dr. Porcher details several well-authenticated cases of *dyspepsia*, or indigestion, some of them of a chronic and distressing degree of severity, which were speedily relieved by chewing the root of the sarracenia, or taking a small portion of the tincture with each meal. The first mode of administration, namely, giving the root in substance, either by chewing and swallowing the juice, or by swallowing it in the form of pills, is decidedly the best, as the alcohol in

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the tincture would in many cases be injurious. The experience of Dr. Porcher is corroborated by that of Dr. Samuel Cordes, of St. James, and many others practicing in the parish of St. Johns, Berkly. The term dyspepsia, or indigestion, however, is a very indefinite one, and should never be used by the physician except to designate a symptom merely. And we confess, that the cases referred to in Dr. Porcher's article are much less definite or intelligible than they would have been, if he had given the actual pathological condition of the digestive organs, instead of calling them dyspepsia, which every experienced physician knows may mean subacute or chronic gastritis, gastralgia, hepatic, or duodenal derangement, or simple loss of peristaltic action, and sluggish secretions. But, from the few symptoms which are mentioned in connection with each case, we infer that they were all destitute of inflammatory action in gastric mucous membrane. From its physiological effects, we should confidently expect the remedy to be of very great value in all those morbid conditions characterized by depression of the organic actions, loss of appetite, and deranged digestion unaccompanied by inflammatory action. At any rate, it is well worthy of further notice by the profession. We are, at the present time, taking measures to procure some of the northern species, the sarracenia purpurea, for examination.

Cornus Florida. Dog-wood. This shrub is too well known in its botanical relations to require any description in this place. Neither is it new to the medical public, for there is scarcely an American writer on materia medica who has not recommended it as a valuable remedy.

And yet, so far as our own observation goes, it is scarcely known in general practice. Several causes have existed tending to produce this result. In the first place, much of the recommendation which has been lavished on it was based on the supposition that it contained a bitter alkaline principle, in all respects similar, if not identical, with the quinia from cinchona, as represented by the analysis of Dr. Carpenter. Subsequent examinations not sustaining this view, however, strongly disposed the profession to neglect it altogether. Another cause of neglect has been the statement, on the part of almost all writers, that the cornus bark is "more apt to disorder the stomach, especially when used in the recent state." These things, together with the inconvenience of using the bark in substance, when compared with the highly con-

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centrated and convenient article of sulphate of quinine, have, doubtless, served to keep in neglect and obscurity one of the most valuable articles of our indigenous materia medica. While living in the interior of this State, we were in the habit of procuring this bark directly from the tree, and using it in all forms of disease where an anti-periodic or febrifuge remedy was indicated, and with such satisfactory results, that we scarcely prescribed ten grains of quinine or cinchona per annum. Seeing the high price of good sulph. of quinine, and the enormous amount of adulterated samples that were annually imported, we thought a more acceptable service could not be done for the profession than to devise some concentrated and reliable preparation of the Cornus Florida bark, and, after carefully testing its virtues, to bring it to the notice of this Association, and, through it, to the whole profession. While pursuing our task, we happily received the *Southern Medical and Surgical Journal* for January 1849, containing an able and interesting article from Dr. D. C. O'Keeffe, of Augusta, Ga., which presented experimental inquiries and facts so much in accordance with our own observations, that we unhesitatingly adopted them as far as they would serve the purposes of our report. According to the several analyses of Walker, Cockburn, Carpenter, &c., it is evident that the cornus bark contains gum, resin, tannin, gallic acid, and a bitter extractive matter in which its peculiar medicinal virtues reside. But whether this extractive matter contains a bitter *alkaline* principle called cornine, as represented by Carpenter, is extremely doubtful. Neither is it essentially of much practical interest. For all that the profession want is a preparation sufficiently concentrated, and possessed of the active qualities of the bark, to be convenient for use. These qualities are fully possessed by the alcoholic extract of the bark. The directions for preparing this extract are given by Dr. O'Keeffe as follows: "Take of dogwood bark, coarsely powdered, *one pound;* alcohol, *four pints;* water, *six pints.* Macerate the bark with the alcohol for five days, pour off the tincture, and express. Boil the residuum for half an hour in *three pints* of the water, strain the liquor through linen while hot, and express; repeat the boiling for the same length of time with the remaining three pints of water, strain and express as before; then mix the decoctions, and evaporate to the consistence of a thin syrup. Distil the alcohol from the tincture, until it acquires the same thickness; then mix both inspissated liquors, and evaporate to the consistence proper for making pills." By this mode, he obtained from ten pounds of

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bark, *fifteen ounces* of good extract; and we have no doubt that it more perfectly exhausts the bark of its active principles than the usual mode of maceration in *diluted* alcohol, and then evaporating.

Care must always be taken, during the processes of evaporation and distillation, to avoid burning the extract. To accomplish this, as soon as the liquid acquires the consistence of a thick syrup it should be placed in an open vessel, and the process completed in a sand bath, or over a slow fire. The bark from the root and trunk of the tree yields a much larger proportion of extract than that from the branches.

The physiological effects, or *modus operandi*, of the cornus bark, like those of quinine, are involved in some obscurity. We have never known it to disturb the stomach or bowels, or to materially increase the force or frequency of the heart's action. Dr. O'Keeffe, while in good health, with his pulse at 72 per minute, took 30 grs. of the extract every hour until he had swallowed four doses (120 grs.).

The following is the result in his own language: "10 A.M., 1st dose, 30 grs. ext.; pulse previous to taking it 72. 11; 2d dose, 30 grs.; pulse intermittent, 72—76; temperature of the surface somewhat augmented; general perspiration; a sense of fulness, and slight dull pain over the frontal eminences, much increased on flexing the head forwards and downwards; uneasy feelings in the stomach and bowels. 12 M.; 3d dose, 30 grs.; pulse 76, not intermittent, but somewhat depressed; sensation in the head uniform. On taking this dose, a sense of warmth was felt in the stomach, and radiated over the surface of the trunk. 1 P.M.; 4th dose, 30 grs.; pulse 76, and regular; pain in the head augmented, and extended down the forehead to the eyelids, with a disposition to sleep; slight oppression in the precordia. Eating dinner neither mitigated nor heightened the dull headache, which continued the same throughout the day; at night, the tendency to sleep much more urgent; retired early; slept well during the night, and arose in the morning free from any unpleasant sensations whatever."

Here, the slightly increased frequency of the pulse, the increased temperature, the perspiration, and the fulness and pain in the head, constitute the only marked effects. How were these produced? Upon what part of the system does the medicine make its primary impression? By far the most constant and marked effects are slightly increased temperature of the surface, and copious general perspiration—effects which must result either from a change in the condition of the blood itself, or in that portion of the nervous system

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which controls the activity of the capillary circulation. Whichever this may be, the obvious *nature* of the influence exerted by the remedy is to invigorate the vital force, and quicken the organic nervous energy, without materially stimulating the muscular action of the heart and arteries. Hence, when taken by a person in health, it exhibits no marked powers either as a stimulant or sedative; but let it be given to a patient whose vital energy is impaired, and whose pulse is quickened from the causes which have brought on an attack of a paroxysmal or periodic disease, such as intermittent or remittent fever, and its prompt effect is, to lessen the frequency and irritability of the pulse, and, by invigorating the organic nervous action, to enable the system effectually to resist an approaching paroxysm.

Here it puts on the appearance of a *sedative*. On the other hand, let it be given to a patient whose vital forces are already in full strength, or whose circulatory system is already under the influence of positive inflammatory action, and it will most certainly aggravate that condition, and play more or less the part of a *stimulant*. Such, we believe, to be the true modus operandi of this and all other genuine febrifuge or anti-periodic remedies. And it shows how readily very contradictory opinions might be formed by different observers.

In regard to the alleged tendency of the cornus to disturb the stomach and bowels, which is mentioned by almost all writers, and which has doubtless exerted no little influence in causing the remedy to remain neglected, we think the opinion entirely without foundation, at least so far as the extract is concerned. On the contrary, the tannin which it contains imparts to it a slightly astringent quality. This opinion is also fully sustained by the experience of Dr. O'Keeffe and others in the South.

In regard to our knowledge of its effects, derived from its direct application in the treatment of disease, we can speak with perfect confidence in its favour; and, were it proper, many cases could be detailed exhibiting its efficacy in all those pathological conditions in which remedies of this class are indicated. It is true that we have not had an extensive personal experience with it in the treatment of periodic fevers, for the happy reason that, in the place of our residence, diseases of that class are only occasionally met with. But our deficiency in this respect is well supplied by Dr. O'Keeffe and others, who have abundantly tested the extract in localities where the periodical fevers are indigenous. Thus, in the essay to

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which we have alluded so frequently, in the *Southern Medical and Surgical Journal*, we find fifteen cases, accurately detailed, of intermittent fever, several of them more or less complicated with gastro-intestinal and hepatic disorder, in which the extract of cornus was exhibited in doses varying from four to twenty grains, repeated every hour, until from one scruple to one drachm was exhibited between the paroxysms, and with the most satisfactory results. And Dr. O'Keeffe states that these cases might be multiplied almost *ad infinitum* from the practice of his preceptors Drs. H. F. and R. Campbell, of Augusta, Ga. We ought to state, perhaps, that the extract used by Dr. O'Keeffe and his preceptors was first prepared by Dr. Oakman, of Columbia Co., Ga., by whom a specimen was sent to Prof. Paul F. Eve, for trial. If the foregoing observations in regard to the extracts of cornus Florida are correct, their importance both to the profession and the community cannot be too highly estimated. In a therapeutic point of view, it places in the hands of the profession an abundant indigenous article, which may always be obtained of uniform strength and purity, fully answering as a substitute for a foreign one of uncertain origin, and which, from its very high price when pure, will always be liable to adulteration.

Economically considered, its advantages are still more manifest. The best cinchona barks yield only about three per cent. of alkaline matter, and hence quinine of good quality is always enormously high in market, seldom being less than two dollars per oz. at the establishment of the manufacturer. Good cornus bark will yield full nine per cent. of extract, which could undoubtedly be sold for less than fifty cents per oz. And yet, in the treatment of disease, we may safely estimate an ounce of extract as equal to at least half an ounce of quinine; thereby leaving to the practitioner, or his patient, a clear gain of *one-half* in the cost of his medicine. The average quantity of extract used by Dr. O'Keeffe in the cases of intermittent fever detailed by him was less than two drachms for each case; and the average time of attendance amounted to about four days.

We had nearly completed a series of experiments concerning the therapeutic value of two more indigenous plants; but, such has been our other engagements, and so great is the amount of time and care required to make such investigations perfectly reliable in their results, that we have been compelled to close our report without including them. We regret this the less, however, as we are satisfied that the Association will deem it advisable to continue the subject of our

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indigenous remedies in the hands of a committee, from year to year, until the whole field has been thoroughly examined. And it is better to have but one article examined each year than to give a mere cursory report on many. As chairman of the Committee, I take pleasure in again presenting important communications from Dr. F. P. Porcher, of South Carolina, and Dr. S. W. Williams, of Massachusetts, each of which embraces a full catalogue of the medicinal plants of their respective States. They have been prepared with great labour and care, and I trust will find a place in the forthcoming volume of your Transactions.

N. S. DAVIS,
Chairman of Committee.

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J.—1.

REPORT

ON THE INDIGENOUS MEDICINAL PLANTS OF SOUTH CAROLINA.

By Francis P. Porcher, M. D.

The Committee of one Member, appointed by the American Medical Association to report on the *Indigenous Medicinal Plants* of South Carolina, respectfully submits the following:—

In entering upon the duties assigned us, we have been guided by a desire to present, at one view, a condensed statement of what is now known of the indigenous plants of this State, which are either possessed of medicinal properties, or are adapted to economical purposes; to which also are added, references to works from which information concerning them may be obtained. In pursuing this course, we have perhaps evaded the strict intention of the resolutions. Independently, however, of any value it may have for purposes of reference, we have been induced to undertake it, that future inquirers may not find themselves entering upon pre-occupied ground, but, being advised of what is already before the profession, may be enabled to proceed to more experimental researches.

It will be seen that we have consulted both the older and more recent works, illustrating the departments of the Materia Medica and Indigenous Medical Botany—from the *Catalogus Plantarum* of John Ray, and the *Materia Medica* of Cullen, to the more modern volumes of Pereira, Griffith, and Carson. We have been at the pains to search through the former, in order not only to ascertain the virtues once ascribed to our plants, and to contrast these with the results of later investigations; but also to exhibit the mutations that have occurred in the confidence reposed in many of what are at present considered our most approved therapeutic agents. The frequency with which this takes place warns us not to discard, upon superficial examination, those popularly considered of trivial importance. The European authorities have been examined, and from

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them has been obtained much concerning our medical Flora which is either not generally known, or not alluded to in the dispensatories, and which might be of essential service to those desirous, not merely of ascertaining what is already understood, but also more thoroughly of investigating the hidden qualities of others. Among these, we must not omit calling attention to that very extensive and laborious work, in six volumes, by Mérat and De Lens, the *Dictionnaire Univ. de Matière Médicale;* the supplementary volume* to which, published in 1846, has also contributed some of the latest foreign intelligence.

The investigation necessary for ascertaining and collecting these, has unfolded a vast fund of facts relative to the virtues of a large proportion, as it will be observed, of the plants both obscure and well known amongst us. And it has furthermore convinced us of the truth of the assertion, that we have every means for the preservation and restoration of health, in the indigenous varieties, so remarkably abundant in the southern sections of the United States.

The State of South Carolina (lat. 32.35, long. 79.84), containing within her boundaries 30,000 square miles, or 19,000,000 acres, is rich in natural resources, and possesses a variety of soil and a range of temperature affected by the presence of both sea and mountain. Its geological features are diversified, and somewhat peculiar. The land for the distance of about 100 miles from the coast rises evenly and insensibly to the height of about 250 feet above the general tide level, forming a vast plain abounding in cypress swamps, and pine and oak ridges. For the most part, quartzose sands and clays cover the surface to the depth of from ten to twenty-five feet or more. These overlay vast beds of tertiary marl, the eocene, miocene, and post pliocene sections of which, composing the limestone regions, cross out and expose their rich fossils in several localities. The earth of the swamps and marshes that skirt the rivers and creeks frequently contains a large proportion of peat. Succeeding the above, are the primary formations stretching away to the mountains in the north-western part of the State. The soil of this portion, derived from the disintegration of the granite, gneiss, clay-slate, and other metamorphic rocks, as they respectively come

* For which we are indebted to Dr. H. W. De Saussure, of Charleston. We have also availed ourselves of the opportunities afforded by the New York Hosp. Library; and our obligations are due to John Thompson, M. D., the very efficient house surgeon of that institution, for enabling us to consult many rare works, placed there through the enlightened liberality of Drs. Hossack and Mitchel.

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to the surface, and are subjected to atmospheric influences, presents every variety of fertility and barrenness. These divisions are distinguished by their characteristic vegetation;* and thus we are presented with geographical and climatic influences which combine to produce a relation between heat and moisture peculiarly adapted to the production of a variety of species—comprising many of our most active curative agents. The State of New York, which is said to include an area equal in extent to the whole of Great Britain, according to Prof. Lee,† out of a Flora of 1450 species, contains but 150 known to be medicinal. Here, it will be observed, in a space considerably smaller in extent, a much larger proportion exists—the following sketch embracing a notice of 410 species, out of about 3500, possessed of medicinal or economic value; including, however, among these, some few exotic or introduced. A single circumscribed locality in the lower section of this State, but ten miles in diameter, furnishes one and one-third more than the whole of New York.

Occupied, for the most part, by these essential preliminary investigations, our own opportunities for examination and experiment have not as yet been sufficient to afford as much as we could desire that is new or important. Our correspondence, however, contributed to add materially to the original matter. We trust that, in time, your Committee will be enabled to present more that is recent and interesting, from sources within the limits prescribed, when that lately appointed by the South Carolina Medical Association shall be able to collect the information confined to localities; when greater attention shall be attracted to the subject, and catalogues of the plants of the different districts shall be made out; for, through the medium of these, a sketch of the medical botany of a State is rendered peculiarly valuable, by advising each one of the proximity of species adapted to important purposes.

Besides the *habitat* of plants alluded to by Elliott, and by that accomplished botanist and physician, Dr. James McBride, we have been able to localize those growing in the vicinity of Charleston‡

* "In short, the Flora of the upper verge of the tertiary is as distinct from that of the rest of the State as are the two geological systems which meet there, from each other." Prof. Tuomey's Geol. Rep. p. 140. We have ourselves repeatedly observed similar relations affecting a more limited space.

† A Catalogue of the Medicinal Plants, Indig. and Ex., growing in the State of New York. By C. A. Lee, Prof. Mat. Med., &c. &c. New York, 1848.

‡ These are distinguished thus, "vic. of Cha'ston." They were collected within ten miles of the city. Many of them are marine, their growth, of course, being affected by the sea air. Pub. in So. Agricult., April, 1835. Charleston.

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from a catalogue published by the Rev. John Bachman, D.D.; and from one, the plants of which were collected by the Committee, in conjunction with H. W. Ravenel, Esq., in the parish of St. John's Berkley, Charleston district, forty-five miles from the ocean. (Lat. 35.15., long. 81.10.)

It may be remarked, that this paper was prepared from a list embracing the species found in Georgia; so that it necessarily includes most, if not all, growing there which are medicinal; as well as many of those common to neighbouring States.

It has been arranged after the Natural System, adopting the views of Lindley.* This, in its relation to medical botany, is peculiarly appropriate and necessary; presenting an interesting and instructive view of the elegance and fitness of the natural system, and showing the analogy, in characteristics and property, between the natural resemblances and the medicinal virtues. To such an extent do botanical affinities aid us in arriving at a knowledge of these, that, although we are unable to establish a rule throughout, yet it may be frequently predicated of a species, prior to any examination concerning its value as a therapeutic agent, from a mere inspection, or from being informed of the position it occupies in the system in question; and among a number, from the manner in which they are grouped, the increase or decrease in value is evident, according as they recede from, or approach, the most striking characteristics which are taken in the aggregate as types of the sections. Thus, we see its obvious superiority, in this point of view, over the artificial system, where mere fanciful, sexual differences determine the places they hold, as well as over a simple alphabetical enumeration.

Some excuse will be found for any awkward arrangement of the details, in the difficulty of collating, digesting, and reconciling statements, many of them contradictory, from a variety of authors. With respect to the bibliographical references, besides indicating the sources whence information may be obtained, they serve to show the amount of attention awarded to particular plants; the value of which, as is frequently the case, is in proportion to, and may be gathered from, a review of these. With respect to some of our most important cultivated plants, the cotton, potato, indigo, &c., we have not hesitated to make the references as large as our opportunities would admit.

* See Nat. Syst. Botany. By John Lindley, F.R.S., &c. London. The whole N. Am. Flora has not yet been subjected to the valuable modification of De Candolle's arrangement by Torrey and Gray.

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Catalogus Plantarum Angliæ, cum Observationibus et Experimentis Novis Medicis et Physicis. Londini, 1667. Auct. Johanne Ray.	Cat. Plantarum.
English Physician. By Nicholas Culpepper, gent., "Student in Physic and Astrology." "An Astrologo-Physiological Discourse on Vulgar Herbs," &c.	Culp. Eng. Phys.
Bulliard, Histoire des Plantes Vénéneuses de la France, 4 vols. Paris, 1774.	Bull. Plantes Vén. de France.
Hortus Americanus. By Dr. Barham.	Bar. Hort. Amer.
Linnæus, Vegetable Mat. Medica. Translated by C. Whitlaw.	Linn. Veg. M. Med.
Demonstrations Élémentaire de Botanique. Containing elem., veg., phys. properties, and uses of plants. With much information concerning the vegetable veterinary practice, &c. By J. Gillibert, Lyons, 1787.	Dem. Élém. de Bot.
Plantæ Rariores Hibernia Inventæ, &c. With Remarks on the Properties and Uses. By Walter Wade, M. D. M. L.S. Dublin, 1804.	Wade's Pl. Rariores.
Le Médecin Herboriste. Paris, 1802.	Le Méd. Herb.
New Med. Discoveries, 2 vols. London, 1829. By C. Whitlaw.	Whitlaw's New Med. Disc.
Am. Herbal, or Materia Medica. With New Medical Discoveries. By Samuel Stearns, LL.D. Walpole, 1801.	Stearn's Am. Herbal.
Flora Scotica. By John Lightfoot. Edinburgh.	Fl. Scotica.
Indigenous Botany. By Colin Milne, LL.D., and Alexander Gordon. London, 1793.	Milne Ind. Bot.
A New Family Herbal; or, an Account of Plants and their Properties in Medicine and the Arts. By R. J. Thornton. London, 1810.	Thornton's Fam. Herb.
Lindley's Natural System of Botany. With the Uses of Important Species in Medicine, the Arts, and Domestic Economy. London, 1836.	Lind. Nat. Syst. Bot.
Medical Botany. By W. Woodville, 4 vols. Lond., 1790. Sec. edition, 1800.	Woodv. Med. Bot.
Barton's Med. Botany.	Bart. M. Bot.
W. P. Barton's Flora. Philadelphia, 1823.	Bart. Flora.
Rafinesque's Medical Flora.	Raf. Med. Fl.
Bigelow's Am. Medical Botany, 4 vols. Boston, 1820.	Big. Am. Med. Bot.
Barton's Collection towards the Formation of a Materia Medica.	Barton's Collec.
Medical Botany. With the Uses of Important Species in Medicine, the Arts, &c. By R. E. Griffith. Philadelphia, 1847.	Griffith's Med. Bot.
Illustrations of Medical Botany. By Joseph Carson, M.D. With Descriptions, &c. Philadelphia, 1847.	Carson's Illust. Med. Bot.
Shecut's Flora Carolinæensis; or, a History, Medical and Economical, of the Vegetable Kingdom. Charleston, 1806.	Shec. Flora. Carol.
Elliott's Sketch of the Botany of South Carolina and Georgia. With Medical Notes. Charleston, 1806.	Ell. Bot. Med. Notes.
Drayton's View of South Carolina. Charleston, 1802.	Drayton's View.
Chalmer's History of South Carolina.	Chalmer's Hist. S. C.

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Garden's and Lining's Observations, Physical and Literary.	Gard. and Lin. Obs.
Travels in South and North Carolina. By John Lawson, Surveyor-General, 1716.	Lawson's S. C.
United States Dispensatory. By Wood and Bache. Philadelphia, 1847.	U. S. Disp.
Thacher's United States Dispensatory.	Thacher's U. S. Disp.
American Dispensatory. By R. Coxe.	Coxe, Am. Disp.
Bergii Materia Medica. E. regno vegetabili, &c. Stockholmiæ, 1782.	Bergii, Mat. Med.
Cullen's Materia Medica. Edinburgh.	Cullen, Mat. Med.
Lewis's Materia Medica, 2 vols. London, 1791.	Le. Mat. Med.
Pereira's Materia Medica and Therapeutics, 2 vols.	Pe. Mat. Med. and Therap.
Practical Dictionary of Materia Medica. By John Bell. Philadelphia.	Bell's Pract. Dict.
Eberle's Materia Medica and Therapeutics, 2 vols. Philadelphia, 1834.	Eberle, Mat. Med.
Edwards and Vavasseur's Matière Médicale. Paris, 1836.	Ed. and Vav. Mat. Méd.
Trousseau et Pidoux, Traité de Thérapeutique, et de Matière Médicale. Paris, 1837.	Trous. et. Pid. Mat. Méd.
Elements of Materia Medica and Therapeutics. By H. R. Frost, Prof. M.M. South Carolina Medical College.	Frost's Elems. Mat. Med.
Chapman's Therapeutics and Materia Medica, 2 vols. Philadelphia, 1822.	Chap. Therap. and Mat. Med.
Ballard and Garrod's Materia Medica. London, 1846.	Ball. and Gar. Mat. Med.
Royle's Materia Medica and Therapeutics. Philadelphia, 1847.	Royle, Mat. Med.
Mérat and de Len's Dictionnaire Univ. de Matière Médicale. Paris, 1837, tom. vi.	Mér. and de L. Dict. de M. Méd.
Supplementary volume to the above. Paris, 1846.	Supplem. to Dict. Univ. de M. Méd.
Watson's Practice of Physic. Second American edition. Philadelphia, 1845.	Watson's Pract. Physic.
Southern Agriculturist. Charleston, 1820, '39.	So. Agricult.
Matson's Vegetable Practice. 1839.	Matson's Veg. Pract.
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MEDICINAL PLANTS OF SOUTH CAROLINA.

INDIGENOUS AND INTRODUCED.

CLASS I. EXOGENS; OR, DICOTYLEDONOUS

FLOWERING PLANTS.

SUB-CLASS I. POLYPETALÆ.

NATURAL ORDERS.

RANUNCULACEÆ. (*Crow-Foot Tribe.*)

THE plants belonging to this order are generally acrid, caustic, and poisonous. It contains some species, however, which are innocuous. The caustic principle is volatile, and neither acid nor alkaline.

Clematis crispa, Linn. Not of Ell. Sk., which is the C. cylindrica. T. and Gray. Grows in damp, rich soils, and in swamps in the low country of S. C. vic. of Cha'ston. Dr. Bachman. Fl. May.

Mér. and de L. Dict. de M. Méd. ii. 311; U. S. Disp. 1244; Shec. Flora Carol. 418. This plant is substituted for the C. erecta, mentioned by Storck, and is employed in secondary syphilis, ulcers, porrigo, &c.; given internally, with the powdered leaves applied to the sore. It acts also as a diaphoretic and diuretic. Mérat says it possesses the properties of the C. vitalba, which is a dangerous vegetable caustic, used as a substitute for cantharides, and applied to rheumatic limbs, and in paralysis and gout. The decoction of the root is alterative and purgative; and is also said to be valuable in washing sores and ulcers, in order to change the mode of their vitality, and to make them cicatrize. Shecut remarks that "the Spanish or blistering flies are very fond of the Clematis crispa, and it would be well for medical gentlemen in the country to propagate

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the plant about their residences, in order to secure a constant succession of these valuable insects." The American species are deserving of particular attention, and we would invite further investigation of them.

Clematis viorna, L. Traveller's joy. Grows in middle and upper districts. Elliott. Fl. July.

Shec. Flora Carol. 489; Griffith's Med. Bot. 86; U. S. Disp. 1244. This, and the following, have also a caustic property, and are employed internally as diuretics and sudorifics in chronic rheumatism; and externally, in the treatment of eruptions, and as vesicants. Shecut says that a yellow dye may be extracted from both leaves and branches; the latter are sufficiently tough to make withs and fagots. The fibrous shoots may be converted into paper, and the wood is yellow, compact, and odoriferous, furnishing an excellent material for veneering.

Clematis Virginiana, Linn. Virgin's bower. Grows in rich soils; Fl. July, vic. of Cha'ston. Wood and Bache, U. S. Disp. 1244; Griffith, Med. Bot. 80. See C. viorna.

Anemone nemorosa, L.
Ranunculus phragmites.
} Wood Anemone. Mountains of South Carolina. Fl. April.

Bull. Plantes Vén. de France; Linn. Veg. M. Med. 109; Fl. Scotica, 287; Chomel, Plantes Usuelles, ii. 376; Dict. des Sc. Méd. lxv. 194; Mér. and de L. Dict. de M. Méd. i. 292; U. S. Disp. 1228. It is said to be extremely acrid, even small doses producing great disturbance of the stomach; employed as a rubefacient in fevers, gout, and rheumatism, and as a vesicatory in removing corns from the feet. It is reported to have proved a speedy cure for tinea capitis, and the flowers have been used in violent headaches; Linnæus says that the plant produces a discharge of urine, attended with dysentery, in cattle which feed on it. It contains a principle called anemonin.

Hepatica triloba, Chaix.
Anemone hepatica, Linn.
} Liverwort. Grows in light soils, upper districts, and in Georgia. Collected by Mr. Ravenel at the Eutaw battle-ground, St. John's, Berkley; sent to us also from Abbeville district.

U. S. Disp. 368; Raf. Med. Fl. i. 238; Lind. Nat. Syst. 81. A tonic and astringent, supposed by some to possess deobstruent

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virtues. It has been used to a considerable extent in hæmoptysis and chronic cough; but Wood says it has fallen into neglect.

Hydrastis Canadensis, W. Orange-root; yellow-root; turmeric. Grows in rich soils among the mountains of South Carolina; Fl. May.

Lind. Nat. Syst. 6; Bart. M. Bot. ii. 21; Veg. Mat. Med. ii. 17; Raf. Med. Fl. i. 251; Griffith, Med. Bot. 82. It has a narcotic smell; used in this country as a tonic. The root was known to the Indians from the brilliant yellow colour which it yields. This appears to be permanent, and might be applied in the arts. Martin, in the Trans. Phil. Soc. 1783, in his Observations on the Dyes used by the Aborigines, states, from his own experience, that it was found serviceable in colouring silks, wool, and linen. With indigo, it yielded a rich green. Griffith mentions it as a powerful bitter tonic, much used in the West as a wash in chronic ophthalmia. In its fresh state, supposed to be narcotic. Tincture, decoction or powder employed.

Ranunculus sceleratus, L.; T. and Gray. Grows in bogs; abundant around Charleston; Fl. May.

Bull. Plantes Vén. de France, 143; Dem. Élém de Bot.; Lightfoot's Fl. Scotica, 295; U. S. Disp. 584; Mér. and de L. Dict. de M. Méd. 620, and the Supplem., 1846, 620; Dioscorides, lib. vi. c. iv.; Orfila, Toxicol. Gén. ii. 90; Big. Am. Med. Bot. iii. 65; Griffith, Med. Bot. 84.

The juice possesses remarkable caustic powers, raising a blister if applied topically, and often in doses of two drops exciting fatal inflammation along the whole tract of the alimentary canal. Some, however, say that this property is not constant, as it is of a volatile nature, and is dissipated by heat. According to Mérat, the Bedouins use it as a rubefacient, and it is applied in sciatica, forming a substitute for cantharides. Annal. Univ. de Méd. 1843. It has been administered with success in asthma, icterus, dysuria, rheumatism, pneumonia, and fixed pains. When it acts as a vesicant, it has not the disadvantage of producing strangury. Bigelow says the volatile principle may be collected by distillation, and preserved in closely-stopped bottles. Tilebein relates that the distilled water is excessively acrid, and on cooling, deposits crystals, which are almost insoluble in any menstruum. Precipitates are caused by muriate of tin and acetate of lead. The boiled root may be eaten.

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Ranunculus repens, Linn. *Nitidus*, Ell. Sk. } Grows in shady woods, and among the mountains of this State; Fl. Aug.

U. S. Disp. 584. This has also a rubefacient and epispastic operation. Big. Am. Med. Bot. iii. 65. Very similar to the above, in its mode of action.

Cimicifuga racemosa, Torrey. *Actæa racemosa*, L. & Wild. } Black snakeroot; Cohosh; grows in the upper districts, and in Geo.; Fl. July.

Linnæus, Veg. Mat. Med. 102 (see Actæa). The root is used in the debility of females attendant upon uterine disorder, and, in its action, is thought to have a special affinity for this organ. It has also a decided effect upon some nervous affections, especially chorea. See Journ. Phil. Coll. Pharm. vi. 20, and Dr. Young's notice of it in the Am. Journ. Med. Sc. v. 310. "We have administered this medicine in chorea with complete success, after the failure of purgatives and metallic tonics; and have also derived the happiest effects from it, in cases of convulsions recurring periodically, and connected with uterine disorder." Wood, U. S. Disp. The powdered root is employed, a teaspoonful three times a-day. It is a stimulating tonic, increasing the secretion of the skin, kidneys, and lungs. Mérat, in the Dict. de Mat. Méd., adds the authority of Dr. Kirkbride in support of the efficacy of this plant in chorea, who advises that a purgative be premised, when it may be given for several days, and then discontinued, to be resumed again; frictions should at the same time be made upon the surface with the tinct. See the Supplem. 1846, to the Dict. de M. M. cit. sup. Dr. Hildreth has found this plant, in combination with iodine, very advantageous in the early stages of phthisis. Am. Journ. Med. Sc. Oct. 1842. The decoction is the most useful form; ℥j of the bruised root is boiled in a pint of water, of which a half pint to one pint may be taken during the day. Dr. Physick also had known it to cure cases of chorea; and Mérat and de L., in the 1st vol. of op. cit. p. 67 (see Actæa), say that it partakes of the properties of A. brachipetala. According to Chapman, it produces free nausea, with abundant expectoration, succeeded by nervous trembling, vertigo, and a remarkable slowness of the pulse. Dr. Garden administered the tincture for phthisis. London Med. Journ. li. 245. Barton employed it as an astringent, which property it owes to the gallic acid it contains. He also gave it in putrid sore throat. In New Jersey, a decoction of the root is said to cure itch; and in N. Carolina, it is given as a drench for cattle, in the dis-

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ease called murrain. Shec. Flora Carol. 91; Carson's Illust. Med. Bot. i. p. 9, 1847. See Anal. in Am. Journ. Pharm. vi. 20, 1843. According to Mr. Tilghman, it contains gum; starch; sugar; resin; wax; tannin; gallic acid; salts of potassa; lime; magnesia; iron, &c. The ethereal extract contains most of its virtues. See, also, Jones, in the Journ. de Pharm. x. 670; and Journ. Phil. Coll. Pharm. vi. 14; Griffith, Med. Bot. 92. He remarks that its greatest efficacy has been exhibited in rheumatism; the power of the root appearing to depend on the volatile oil, and bitter resin, both of which are soluble in alcohol, and partially so in water.

Zanthorrhiza apiifolia, L'Her. Yellow root. Upper, and mountainous districts; Fl. April.

U. S. Disp. 745; Bart. Med. Bot. ii. 203; New York Med. Repos. 291; Lind. Nat. Syst. 6; Griffith, Med. Bot. 95; Elliott's Bot. Med. note i. 376; Stokes, Med. Bot. ii. 194.

The bark possesses pure bitter tonic properties, closely analogous to those of colombo and quassia. Dr. P. C. Barton thinks it a more powerful bitter than the former of these. It was given by Dr. Woodhouse, in doses of ℈ij, in dyspepsia; a decoction is also employed. The shrub contains a gum and resin, both of which are intensely bitter. Alcohol is the best menstruum. Its tinctorial powers were known to the Indians. It yields plentifully a colouring matter, a drab being imparted by it to wool, and a rich yellow to silk; without a mordant, it does not affect cotton or linen; with Prussian blue, it strikes a dull olive green color.

Podophyllum peltatum, L. Wild jalap; May apple; wild lemon; duck weed. Diffused in rich swamp lands; grows in Abbeville and Sumter districts; collected in St. John's, Berkley; vicinity of Charleston. Bach. Fl. March.

Pe. Mat. Med. ii. 749; Bell's Pract. Dict.; Drayton's View S. C. 73; Royle, Mat. Med. 573; Frost's Elem's, 137; Eb. Mat. Med. i. 205; Ed. and Vav. Mat. Méd. i. 514; U. S. Disp. 556; Big. Am. Med. Bot. ii. 34; Bart. Med. Bot. i. 9; Journ. Phil. Coll. Pharm. iii. 273; Med. Record, iii. 332; Ball and Gar. Mat. Med. 193; Schoepf, M. M. 86; Mér. and de L. Dict. de Mat. Méd. v. 207; Chap. Mat. Med. and Therap. 209; Coxe, Am. Disp. 478; Lind. Nat. Syst. Bot.

Bigelow says it is a sure and active cathartic; "we hardly know any native plant that answers better the common purposes of jalap,

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aloes, and rhubarb." The Shakers prepare an extract, which is much esteemed as a mild cathartic. By the experiments of Dr. Burgon, in the Am. Med. Recorder, it is useful in combination with calomel; ten grs. of the latter, with twenty of the podophyllum. In bilious affections, it usually supersedes the necessity of an emetic, previous to a cathartic; and, by this means, two desirable effects are produced by one agent. Big. Appendix, iii. 187; Griffith, Med. Bot. 116. It has been recommended in dropsy, from the abundant evacuations which it produces. According to Staples, it contains resin and starch; and Dr. Hodgson has given the name podophylline to the peculiar substance it contains. See Journ. Phil. Coll. Pharm.; Carson's Illust. of Med. Bot. 18, pt. i. An officinal extract is prepared, given in doses of 5-15 grs. The leaves are purgative, and sometimes produce nausea in irritable stomachs; the fruit is eatable. It was employed by the Cherokees as an anthelmintic; a few drops poured into the ear are said to restore the power of hearing. The plant has also been found to afford speedy relief in incontinence of urine. Dr. M'Bride made great use of it during his practice in St. John's, Berkley, S. C.; he said that it answers all the purposes of the officinal jalap, "producing copious liquid discharges, with no griping." In a communication from Dr. Douglass, of Chester district, S. C., his correspondent, Mr. M'Keown, considers the root too drastic as a purge; he adds, that the powdered root, mixed with equal parts of resin, acts as a powerful caustic, and is used by farriers for escharotic purposes. We have employed this plant among negroes, as a substitute for jalap and the ordinary cathartics, and find that it answers every purpose, being easily prepared by the individual having charge of them. Thirty grs. of the root in substance were given, or an infusion of one ounce in a pint of water, of which a wineglassful, three times a-day, is the dose; employing the Liriodendron tulipifera as a substitute for quinine, during the stage of intermission of all mild cases of intermittent fever. We would invite the particular attention of planters to the extensive employment of these medicines upon their plantations. We have caused them to be used on one, upon which upwards of a hundred negroes resided, and we found that, during a period of seven months, including the warm months of summer, they were used in all cases, and, apparently, fulfilled every indication. No detailed statement of these could be obtained, as it was administered by one of their own number; but large quantities of them were required.

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PAPAVERACEÆ. (*The Poppy Tribe.*)

Narcotic properties generally prevail throughout this order. Seeds are universally oily—seldom narcotic. Europe is the principal seat of the papaveraceæ; but several species included under it are found in North America, beyond the tropic. Most of them are annuals, the perennials being chiefly natives of mountainous tracts.

Argemone Mexicana, Linn.; D. C. Prodrom. Prickly poppy; thorn apple; yellow thistle. Charleston district, grows around buildings in rich spots; Fl. July, vic. of Cha'ston.

Mér. and de L. Dict. Univ. de M. Méd. i. 395; Journ. de Pharmacie xiv. 73; Bull. des. Sci. Méd. de Fér. viii. 210; De Cand. Essai, 116. The oil is said by some to be as active as that of the Croton tiglium; see the Supp. to Mér. and de L. 1846, 57. In Brazil, the leaves are employed as a cataplasm, for driving off ulcers. The infusion is used in Mexico for its marked sudorific powers; the juice is found serviceable in chronic maladies of the skin. In Java, they employ it in inveterate cutaneous diseases, and as a caustic in chancres. Lind., in his Nat. Syst. Bot. 8, says that the seeds are narcotic, and are smoked with tobacco; Gardener's Mag. vi. 315. It is administered in the West Indies as a substitute for ipecacuanha, and the juice of the plant is considered, by the native doctors of India, as a valuable remedy in ophthalmia, either dropped in the eye, or rubbed on the tarsus; it is also considered purgative and deobstruent. Ainslie, M. Med. Ind. 243; Prince Maximil. Travels, 214; Aublet, Hist. Guiane. Mérat, in the Supplem. 1846, says that, in Brazil, in the Isle of France, and in India, the oil is regarded as a purgative, not unlike castor oil, but more active—not, however, being attended with griping; thirty drops were found equivalent to ʒj of ol. ricini. They applied it in tinea capitis, and as an external application in headache, occasioned by exposure to the rays of the sun. See Dr. Schort's examination of it. Dr. Muddie asserts that it induces anodyne effects; so much so, as to relieve, in an instant, the pains of colic. Med. Bot. Soc. London, 1830; Griffith's Med. Bot. 129. The plant abounds in a viscid, milky, acid juice, which, exposed to the air, becomes yellow, resembling gamboge. The flowers are said by De Candolle, Essai, 14, to be employed in Mexico as a hypnotic. A thorough examination of this plant might well repay the labor bestowed upon it.

Sanguinaria Canadensis, Linn. Ell. Sk. Puccoon; blood root.

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Diffused, vic. of Cha'ston, Abbeville, Richland, and Fairfield districts; collected in St. John's; Fl. March.

Drayton's View of S. C. 72; Bell's Pract. Dict. 404; Eberle, Mat. Med. 95; Lind. Nat. Syst. 8; U. S. Disp. 627; Royle, Mat. Med. 273; Pe. Mat. Med. and Therap. ii. 722; London Med. Chirurg. Trans. vol. i.; Bart. M. Bot. i. 30; Ann. Lyceum Nat. Hist. New York, ii. 250; New York Med. and Phys. Journ. i. No. 2; Am. Journ. Med. Sci. N. S. ii. 506; Journ. Phil. Coll. Pharm. iii. 95; Ball. and Gar. Mat. Med. 208; Big. Am. Med. Bot. i. 75; Schoepf, Mat. Med. 85; Barton's Collec. 28; Trans. Lond. Med. Soc. i. 179; Thacher's Disp. 331; Cutler, Mem. Am. Acad. i. 455; Mér. and de L. Dict. de M. Méd. vi. 208; Bull. des Sci. Méd. Fér. vi. 71; Edinb. Med. Journ. vii. 217; Shec. Flora Carol. 153; Carson's Illust. Med. Bot. i. 18, 1847. The root is narcotic, emetic, and purgative in large doses; stimulant, diaphoretic, expectorant, and tonic, in small. Dr. Dana found a peculiar principle in it, called sanguinarina (Ann. Lyceum Nat. Hist. New York). According to the experiments of Dr. Donney, of Maryland, in his inaugural thesis, twenty grain doses of the root induced nausea and vomiting, attended with heat of stomach, acceleration of pulse, and sometimes slight headache; the leaves are said to be endued with similar powers. "The seeds exert a marked influence on the nervous system, occasioning torpor, languor, disordered vision, and dilatation of pupil." Dr. Bard, of N. Y., confirms this in his Inaug. Diss. It is an acrid narcotic, producing vomiting, and given in all diseases of the mucous membranes; employed in catarrh, typhoid pneumonia, croup, hooping-cough, and in arresting the progress of phthisis, and also in inflammatory rheumatism and jaundice. It was known to Schoepf; and Mérat states that it was serviceable in gonorrhœa. Dr. Israel Allen, of N. Y., says it acts with all the good effects of digitalis, in affections of the lungs, the infusion being preferred in these, as the tincture does not afford the active principle sufficiently strong; he adds, also, that it powerfully promotes diaphoresis in inflammatory rheumatism. Bigelow mentions it as an acrid narcotic, in small doses lessening the frequency of the pulse, somewhat analogous in its operation to that of digitalis, this, however, being its secondary effect. In still smaller doses, it is a stimulating tonic. The powdered root, snuffed up the nose, is powerfully sternutatory; it is applied as an escharotic to fungous flesh; and several polypi, of the soft kind, were cured by it in the hands of Dr. Smith, of Hanover. Dr. Shanks, of Tenn., also destroyed a gelatin-

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ous polypus with sanguinaria, after extraction had twice failed. Am. Journ. Med. Sci. Oct. 1842. The decoction has also been used as a wash to ill-conditioned ulcers. Dr. M'Bride employed this plant to some extent, in his practice in St. John's, Berkley, S. C., in jaundice, in doses of two to six grains of root. He did not trust to it exclusively, but found it most effectual in those cases characterized by torpor of the liver, attended with colic, and yellowness of the skin. See his letter to Dr. Bigelow. He gave, too, with success, in hydrothorax, the tincture in doses of sixty drops, three times a-day, increased until nausea followed its employment. Eberle, in his work on Diseases of Children, p. 97, says, that the powdered root is an excellent escharotic in ulceration of the umbilicus. Griffith's Med. Bot. 127. It is observed by some, that the seeds are more narcotic than the root, inducing symptoms resembling those produced by stramonium. The dose of powder as an emetic, x—xx grs.; as a stimulating expectorant, iii —v grs.; or an infusion of ℥ss of the root to one pint of water, dose, a tablespoonful; of the tincture, it is ʒss. Dr. Donney says the leaves are administered in veterinary practice in Maryland, to produce sweating, and to facilitate the shedding of hair in the spring. Dr. Griffith is convinced of its efficacy in this respect, and he has also given the fresh root mixed with the food, at intervals, to destroy bots in horses, one or two roots proving sufficient. In a communication from Dr. Branch, of Abbeville district, S. C., he informs us that he has for many years employed the decoction of the root in croup; he prefers it to any other single remedy; and, by persisting in it till emesis is produced, he is of the opinion that it prevents the formation of the diphtheritic membrane. From his own experience, he considers it a specific in the early stages of the disease, preferring, for infants, the infusion to the tincture, as the difficulty of exciting vomiting frequently renders it necessary to give more of the alcohol than would be prudent. He finds it convenient, when called to a case of croup, to add to ʒss of the powdered, or bruised root, a teacupful of boiling water, allowing it to steep for ten or fifteen minutes over the fire, when it may be given in teaspoonful doses, frequently repeated, until vomiting is induced; if the patient is relieved, continue it in doses short of the emetic point, every hour or two, increasing it in frequency and amount, should the symptoms require it. Dr. B. is of the opinion that it owes its value to three qualities combined—an acrid, an emetic, and a deobstruent property, the latter acting on the glandular system. It possesses, also, the peculiar advantage of not producing bad effects by accumulation; a

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teacupful not debilitating any more than a smaller quantity, and neither inducing prostration, which, in the disease in question, is an important consideration. If the patient's skin is hot and dry, the addition of a few grains of ipecacuanha is advised. The experience of Dr. Branch corroborates that of others respecting the value of the tincture, in doses of ten to fifteen drops, given three or four times a-day, as an expectorant in chronic cough. In emetic doses, it proves a useful promoter of expectoration in pneumonia. The juice of the root was used by the Indians as a red pigment, and it has been applied to the arts. Dr. Donney says that the sulph. of alumina will partially fix the color in woollen stuffs, and the murio sulph. of lead in cotton and linen. The stain, applied to the unbroken skin, is not indelible.

Fumaria officinalis, Linn. Hook. Fl. Bo. Fumitory. Natural, says Elliott, on John's Island, and at Mr. Middleton's on Ashley River.

This plant received great attention in former times, and was almost universally employed. Pliny speaks of it, lib. 25, c. 13. According to Hoffmann and Boerhaave, the juice taken in large doses is diuretic and laxative. Great confidence was placed in its virtues by Cullen. Mat. Med. ii. 77. In the Dem. Élém. de Bot., it is referred to as a diuretic and detersive aperient, employed as a purifier of the blood, in scrofulous and cutaneous diseases. It was administered in amenorrhœa, loss of appetite, and hypochondriacal affections; Fl. Scotica, 379. Boerhaave frequently prescribed it in jaundice and bilious colics. Thornton, in his Fam. Herb. 628, asserts that he had experienced its value in cutaneous diseases. Its acrimonious property is volatile; hence, it should be given in whey. Mér. and de L. Dict. de M. Méd. iii. 310; Fl. Méd. iv. 153. "A marked bitter, which increases on being dried." A popular depurative remedy, which augments the action of the organs, and therefore useful in the diseases specified. Mérat says, it was very generally allowed to be a specific in elephantiasis, acting without any evacuation or appreciable effect. Barbier, M. Med. 381; U. S. Disp. 1254. An extract of the expressed juice or a decoction, throws out upon its surface a copious saline efflorescence. "The plant indeed abounds in saline substances." Griffith, Med. Bot. 118. It is still employed in France; given in the form of decoction, extract, syrup, or expressed juice.

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NYMPHÆACEÆ. (*The Water Lily Tribe.*)

This order is generally considered antaphrodisiac, sedative, and narcotic. Their stems are bitter and astringent; they contain a considerable quantity of fecula, and, after repeated washings, are capable of being used for food.

Nymphæa odorata, Ait. Kew. and Ph. Sweet-scented water-lily; pond-lily. Diffused in lower country of South Carolina; roots immersed; Fl. April.

U.S. Disp. 1280; Mat. Veg. Pract. 201; Thompson's Steam Pract. Big. Am. Med. Bot. 132; Cutler, Am. Trans. i. 456. "An antaphrodisiac." The root possesses a high degree of astringency, containing, according to Dr. Bigelow, tannin and gallic acid. It is a popular remedy in bowel-complaints; and is used as an astringent in gleet, fluor albus, &c. It also forms an excellent demulcent poultice for ulcers. Mér. and de L. Dict. de M. Méd. iv. 643; Bull. des Sci. Méd. iii. 74. Ainslie, in his Mat. Med. Ind. ii. 381, says that, in India, they prepare with it a refreshing liniment for the head. Thompson employed this plant in the steam practice, and Matson recommends it as a gargle in sore throats.

CEPHALOTACEÆ.

We insert this order, the properties of which are unknown, merely to introduce the non-medicinal, but very remarkable plant, the

Dionæa muscipula, Ellis, L. Venus fly-trap. Gen. C. C. Pinckney informed Mr. Elliott of the only locality of this interesting plant in this State, viz., on the margin of the Santee River, between Lynch's Ferry and the sea, particularly at Collins's and Bowman's bridges. Fl. May. Its leaves possess great sensibility, and are prehensile—closing up, and confining insects, and any foreign body which comes in contact with it. See Curtis, in Bost. Journ. Nat. Hist. i. p. 123, the article "Sarracenia" infra, and authors passim.

MAGNOLIACEÆ. (*The Magnolia Tribe.*)

This order is characterized by the possession of a bitter tonic taste, and fragrant flowers—the latter generally producing a decided action upon the nerves.

Magnolia glauca, L. Bog beaver tree; swamp-laurel. Diffused in damp pine lands; Fl. June, Chas'ton.

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Big. Am. Med. Bot. ii. 67; Bart. i. 77; U. S. Disp. 442; Pe. Mat. Med. ii. 733; Royle, Mat. Med. 248; Ball. and Gar. 189; Michaux, N. Am. Sylvia, ii. 8; Kalm's Travels, i. 205; Humphries, Med. Comment. xviii.; Mér. and de L. Dict. de M. Méd. iv. 193; Marshall's Arbust. 83; Bart. Mat. Med. 46; Price, Inaug. Diss. Phil. 1812; Lind. Nat. Syst. 18; Am. Herbal, 200; Griffith, Med. Bot. 97. It is a stimulant, aromatic tonic, with considerable diaphoretic powers. The leaves steeped in brandy, or a decoction of them, are valuable in pectoral affections, recent cold, &c. The tincture, made by macerating the fresh cones and seeds, or bark of root, in brandy, which best extracts its virtues, is much used as a popular remedy in rheumatism; and, according to Barton, in inflammatory gout. Lindley refers to it as a valuable tonic, but it is said to be destitute of tannin, or gallic acid. The bark of the root, according to Griffith, was employed by Indians to fulfil a variety of indications; the warm decoction acts as a gentle laxative, and subsequently as a sudorific, whilst the cold decoction, powder of, or tincture, is tonic. These have proved very beneficial in the hands of regular practitioners in the treatment of remittents of a typhoid character. It is supposed, by many residing in the lower portions of this State, that this tree prevents the water of bogs and galls from generating malaria. It certainly seems that the water is much clearer in which the bay tree grows.*

* In that old work on Herbs, entitled the "English Physician," by Nicholas Culpepper, gentleman, "Student in Physic and Astrology," we have met with a great deal concerning the employment of herbs in medicine; but, from the absence of botanical terms, it is impossible to ascertain, in many cases, what species are intended. In order to show the surprisingly superstitious credence then attached to the influence of astrology, in determining the virtues of, and the times proper for gathering plants, and also the diversity of qualities attributed to them, we will extract a portion of what Culpepper says of the "Bay Tree." "*Government and Virtues.*—That it is a Tree of the Sun, and under the celestial Sign Leo, and resisteth Witchcraft very potently, as also all the Evils old Saturn can do to the Body of Man, and they are not a few; for it is the Speech of one, and I am mistaken if it were not Mezaldus, that neither Witch nor Devil, Thunder nor Lightning, will hurt a Man in the Place where a Bay Tree is. Galen said that the Leaves or Bark do dry and heal very much, and the Berries more than the Leaves; the Bark of the Root is less sharp and hot, but more bitter, and hath some Astriction withal, whereby it is effectual to break the Stone, and good to open Obstructions of the Liver, Spleen, and other inward Parts, which bring the Dropsy, Jaundice, &c. The Berries are very effectual against all poison of venomous Creatures, and the Sting of Wasps and Bees, as also against the Pestilence and other infectious Diseases, and therefore put into sundry Treacles for the purpose. They, likewise, procure Women's Courses, and seven of them given to a Woman in Sore Travel of Child-birth do cause a speedy Delivery, and expel the After-birth, and therefore are not to be taken by such as have not gone their Time, lest they procure Abortion or cause Labour too soon. They wonder-

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Magnolia grandiflora, L. Magnolia. This magnificent tree grows abundantly along the sea coast, and in the streets of Charleston. Found sparingly in St. John's, Berkley, forty-five miles from the ocean. Grows in Georgia also. Fl. May.

Mér. and de L. Dict. de M. Méd. iv. 193; Pe. Mat. Med. and Therap. ii. 734; U. S. Disp. 444. The medicinal and chemical properties of these plants are supposed to be identical. See M. glauca. Mr. Procter, in his analysis, Am. Journ. Pharm. xiv. 95, and viii. 85, found in this species volatile oil, resin, and a crystallizable principle analogous to the liriodendrin of Prof. Emmet, obtained from the L. tulipifera growing in this State (vide L. tulip.). Mérat says that, in Mexico, the seeds are employed with success in paralysis. *Loc. cit. sup.*

Magnolia acuminata, Linn. Mich. Cucumber tree. Mountainous districts. Fl. July. Grows in Georgia also.

U. S. Disp. 443; Mx. N. Am. Sylvia, ii. 12; Lind. Nat. Syst. 16. Lindley speaks particularly of the cones of this species being employed in the form of a spirituous tincture in rheumatic affections. Mér. and de L. Dict. de M. Méd. iv. 193; Griffith, Med. Bot. 98. Used as a prophylactic in autumnal fevers.

Magnolia umbrella, Lam.
" *tripetala*, Linn. and Ell. Sk. } Umbrella tree. Rare. Grows on the sea coast in rich soils; Fl. June.

U. S. Disp. 443. It has a warm, aromatic odour, and is possessed of similar properties with the above. Mx. N. Am. Sylvia, ii. 19; Lind. Nat. Syst. 16. According to De Cand. and Mérat, Dict.

fully help all cold and rheumatic Distillations from the Brain to the Eyes, Lungs, or other Parts, and being made into an Electuary with Honey, do help the Consumption, Old Coughs, Shortness of Breath, and thin Rheums, as also the Megrim. They mightily expel the Wind, and provoke Urines, help the Mother, and kill the Worms. The Leaves also work the like Effects; a Bath of the Decoction of the Leaves and Berries is singularly good for Women to sit in that are troubled with the Mother, or the Diseases thereof, or the stoppings of their Courses, or for the Diseases of the Bladder, Pains in the Bowels by Wind and stopping of Urine; a Decoction, &c., settleth the Palate of the Mouth in its Place. The Oil made of the Berries is very comfortable—all Cold Griefs of the Joints, Nerves, Arteries, Stomach, Belly, or Womb, and helpeth Palsies, Convulsions, Cramps, Aches, Tremblings, and Numbness in any Part, Weariness also, and Pains that come by Sore Travelling. * * * * Pains in the Ears are also cured by dropping in some of the Oil, or by receiving into the Ears the Fume of the Decoction of the Berries through a Funnel. It takes away the Marks of Bruises; it helpeth also the Itch, Scabs, and Weals in the Skin," &c.

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de M. Méd. iv. 193, it acts so powerfully on the nerves as to induce sickness and headache.

Magnolia macrophylla. Mx. and Ell. Sk. Grows on the mountains of South Carolina. It possesses the most magnificent foliage and flowers of any of our forest trees; the former are a foot or two in length; and the latter, one foot in diameter. For its medicinal properties, see M. glauca. See, also, Griffith's Med. Bot. 98, and Ell. Sk. of Bot. of S. C.

Liriodendron tulipifera, L. Tulip tree; white wood; poplar. Grows in swamps; diffused. Collected in St. John's, Charleston district. Fl. June.

Eberle, Mat. Med. ii. 308; U. S. Disp. 432; Rush, in Trans. Phil. Coll. Phy. 1798; Pe. Mat. Med. ii. 743; younger Michaux on Forest Trees of N. America; Clayton, Phil. Trans. 8; Carey's Am. Museum, 12; Barton's Collec. Form. Mat. Med. 14; Thacher's U. S. Disp; Big. Am. Med. Bot. ii. 107; Barton, i. 92; Ball. Gar. Mat. Med. 190; Mér. and de L. Dict. de. M. Méd. iv. 130; Annal. de Chimie, lxxx. 215; Lind. Nat. Syst. Bot.; Rogers' Inaug. Diss. 1802. This plant is tonic, diuretic, and diaphoretic, and is generally considered one of the most valuable of the substitutes for Peruvian bark. It has been employed as a warm sudorific in the treatment of chronic rheumatism and gout; and Bigelow thinks it valuable as a stomachic. It was administered by Dr. Young and himself, combined with laudanum, in hysteria, and the former says that in all the materia medica he does not know of a more certain, speedy, and effectual remedy for that disease. See his letter to Governor Clayton. "He has never known it to fail in a single case of worms." Am. Museum, xii.; Griffith, Med. Bot. 98. Rafinesque says the seeds are laxative, and the leaves are used as an external application for headache; they are washed and applied to the forehead. Mérat states that it is useful in phthisis, and he also refers to its vermifuge properties; employed in relaxed states of the stomach (*relâchemens*), and in the advanced stages of dysentery; this is corroborated by Thacher, Auc. Journ. de Méd. lxx. 530; J. C. Mayer, Mém. on L. tulipifera, in the Mém. de l'Acad. de Berlin, 1796; Ruch. Mém. sur le tulipier, Tilloch's Magazine; Hildebrande, Essai sur un nouveau succédané du quinquina in Ann. de Chim. lxvi. 201; Carminati sur les propriétés médicinales de l'écorce de tulipier. Its analysis, &c., in the Mem. of Roy. Inst. Lombardy, iii. 4; in the

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Supplm. to Mér. Dict. 1846, 436. M. Bouchardat advises, as the most preferable mode of exhibiting it in fevers, the wine of the tulip, made with the bark in equal parts of alcohol, to which he adds, of white wine seven or eight times the amount of the alcoholic infusion. Bull. de Thérap. xix. 246; S. Cubiere's Hist. Tulip. Paris, 1800; see Tract. of Bouchardat in Ann. de Thérap. 75, 1841. Dr. J. P. Emmet, in his Analysis in the Phil. Journ. Pharm. iii. 5, announced the discovery of a new principle in it, the liriodendrine. This is solid, brittle, and inodorous at 40°, fusible at 180°, and volatile at 270°. It is soluble in alcohol, thought to be analogous to camphor, and to the principle found in the magnolia grandiflora, and to consist of a resin and a volatile oil, hence the alcoholic tincture is preferable. We have employed a strong infusion of the bark and root of this plant, as an anti-intermittent, among a number of negroes, and are much pleased with its efficacy. See the Podophyllum peltatum, in conjunction with which it was usually given. In Virginia, the decoction of the bark, with that of the Cornus Florida (dogwood), and the Prinos verticillatus, is given to horses affected with the bots. Dose of bark xx—xxx. grs. The wood is durable when not exposed to the weather—it is smooth, fine-grained, and flexible, employed for various mechanical purposes; for carving and ornamental work; for making carriage and door pannels, chairs, cabinets, &c. Mx. Forest Trees of America.

ANONACEÆ. (*The Papaw Tribe.*)

The plants of this order generally possess a powerful aromatic taste and smell in all the parts.

Uvaria triloba, T. and Gray. *Anona*, " Linn. *Asimina*, " Ell. Sk.	Papaw, custard apple. Grows in rich soils along streams. We have observed it in Fairfield district, and collected it in St. John's; Mr. Elliott says it is found at Beck's Ferry, Savannah River. Fl. May.

Dict. de Mat. Med. par Mé. and de L. tom i. 311. The rind of the fruit of the A. triloba of Linn. possesses a very active acid; pulp sometimes employed as a topical application in ulcers. Lind. Nat. Syst. Bot. 69. "Juice of unripe fruit is a powerful and efficient vermifuge; the powder of the seeds answers the same purpose; a principal constituent of the juice is fibrine—a product supposed peculiar to animal substances and to fungi." "The tree has, moreover, the property

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of rendering the toughest animal substances tender by causing a separation of the muscular fibre, its very vapor even does this; newly killed meat suspended over the leaves, and even old hogs and poultry, when fed on the leaves and fruit, become tender in a few hours!" Lind. loc. cit. This tree can be found in many parts of the State, and we would invite examination into these very curious properties. For an excellent description of the papaw, see Hooker in the Bot. Magazine, 898.

UMBELLIFERÆ. (*The Umbelliferous Tribe.*)

This order is nearly related to the Ranunculaceæ, and is generally found in cold countries, and on the mountains of tropical regions. The plants belonging to it are often poisonous, some virulently so; others are nutritive and wholesome; of the former, the hemlock is an example; of the latter, the celery and parsley.

Hydrocotyle umbellata, L. Grows in bogs and wet marshes; coll. in St. John's; vic. Cha'ston; Fl. May.

Mér. and de L. Dict. de M. Méd. t. iii. 560. Employed with great efficacy in Brazil against hypochondriacism. According to one author, the root is so valuable in diseases of the kidney as not to be replaced by any other medicines. It is emetic, diuretic, and vulnerary. We see no mention of it in the English or American works.

Sanicula Marylandica, L. Sanicle. Diffused; grows in shady spots; coll. in St. John's; vic. of Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 201. The Indians used it as we do sarsaparilla in syphilis, and also in diseases of the lungs.

Eryngium aquaticum, L. (*E. Yuccæfolium* of Mx.) Button snakeroot. Damp pine lands; diffused; coll. in St. John's; Cha'ston; Fl. July.

Coxe, Am. Disp. 268; Ell. Bot. i. 343; Barton's Collec. i. 3; Frost's Elems. 280; U. S. Disp. 318; Mér. and de L. Dict. de M. Méd. iii. 145; Shec. Flora Carol. art. Button Snakeroot, 310, 545. The decoction is diaphoretic, expectorant, and sometimes emetic. Elliott says it is preferred by some physicians to the seneka snakeroot. Barton, in his Collections, states that it is allied to the contrayerva of the shops. This plant is possessed of undoubted diuretic powers, and in combination with the Iris versicolor (blue flag),

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was much employed by Dr. M'Bride, of South Carolina, in dropsy. (See I. versic.) Great use is frequently made of them in popular practice. Shec. in his Flora Carol. 310, states that the decoction and the tincture are given with benefit in pleurisies, colds, and most of the inflammatory diseases of the mucous passages. It is also said to act as an escharotic, keeping down fungous flesh, and preventing mortification. The root, when chewed, sensibly excites a flow of saliva.

Eryngium fœtidum, L. Fever weed. Elliott is doubtful whether this plant comes within the limits prescribed to us; it has, however, been noticed by writers as a S. C. species, and Michaux found it in Florida. T. and Gray are of the opinion that it is not a native of the United States. Vic. of Cha'ston, Bachman; Shec. Flora Carol. 54. "An admirable febrifuge." Mér. and de L. Dict. de M. Méd. iii. 145; Aublet, i. 284. Rotboll says it is sedative, alterative, and febrifuge. Sprengel, Hist. de la Méd. v. 467; Lind. Species, Pl. 336.

Cicuta maculata, L. Walt. Fl., Carolina. Am. hemlock; snakeweed; beaver poison. Grows in bogs and inundated land; coll. in St. John's; Cha'ston; Fl. Aug.

U. S. Disp. 1242; Barton's Collec. 1846; Mér. and de L. Dict. de M. Méd. ii. 282; Big. Am. Med. Bot. i. 125; Schœpf, M. Med. 36; Stockbridge, N. England Journal, iii. 334; Mitchell, Ely, and Muhlenberg, Med. Repos. xvii. 303; Stearns, Am. Herbal, 172. The leaves, flowers, and seeds are resolvent, powerfully narcotic, sedative, and anodyne. It resembles conium in its effects, and is used as a substitute for it. "It relieves pain from cancer more powerfully than opium;" employed in ill-conditioned ulcers, gleets, painful uterine discharges, venereal ulcers, epilepsies, and convulsions; it promotes perspiration and urine, and, externally applied, discusses hard tumours. It is closely analogous to the European species, the C. virosa; Bigelow says identical with it. The dose of the leaves in powder is i—ii grs. three times a day, in infusion, or gr. j of the extract, increasing it as the system becomes tolerant. This plant has repeatedly occasioned the death of those mistaking it for others. An active emetic, to which an infusion of galls may be added, will generally give relief. The vegetable acids, lemon juice, and vinegar, neutralize its effects; and strong tea

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and coffee are the best antidotes for the stupor which follows its employment.

Apium graveolens. Celery; Ex. cult. Milne, Ind. Bot. 420. The fresh roots, observes Dr. Lewis, when produced in their native water soil, are supposed to partake of the ill quality of those of the hemlock kind, and to be particularly hurtful to epileptic and pregnant women. So that we have here a striking evidence of the excellence of the Nat. Syst, as it may be remembered that, in describing the characteristics of this order, this plant was alluded to as forming an exception.

Apium petroselinum. Parsley; Ex. cult. Leaves aromatic and slightly diuretic. See authors.

Discopleura capillacea, D. C. and T. and Gray. *Ammi majus* of Walter. — Bishop's weed. Grows in damp soils. Fl. July. Shec. Flora Carol. 136.

Sium nodiflorum, Walt. and Ell. Sk. *Helosciadium* of Koch. — "Probably introduced; abundant around Charleston." Ell.

Thornton's Fam. Herbal, 297; Ray's Cat. Plantarum, 213; Dict. de M. Méd. It is recommended in cutaneous eruptions. Withering relates the case of a young lady, who was cured of a very obstinate attack by taking three large spoonfuls of the juice twice a day; "and I have repeatedly seen," says Thornton, "ʒij administered every morning, with the greatest advantage." It is not nauseous, and children take it readily, mixed with milk. When it is prepared in this way it is not disagreeable, and does not affect the head, stomach, or bowels. U. S. Disp. 1296. The juice has also been employed in scrofulous swellings of the lymphatic glands, and is considered diuretic. Mér. and de L. Dict. 369; Bull. des Sc. M. de Férus. xviii. 420 and xx. 421.

Fœniculum officinale. Fennel. Introduced from Europe; cult.

Seeds of fennel are well known: employed in flatulent colic for their carminative and stimulant properties. The oil of fennel is also used for the same purpose, and to correct the taste of medicine. See authors.

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Angelica lucida, Ell. Sk. *Archangelica* of some. { Angelica. We have collected it in Fairfield district; also in Upper St. John's, Charleston district. Fl. July.

Pe. Mat. Med. and Therap. ii. 469; Ed. and Vav. Mat. Méd. 276; Le. M. Med. i. 85; Woodv. Med. Bot. 86; U. S. Disp. 98; Journ. de Pharm. 3e sér. 2; Mér. and de L. Dict. de M. Méd. i. 296; Shec. Flora Carol. 167. The root is edible, and possesses more aroma than any of our indigenous plants. It is used in spasmodic vomiting, flatulent colics, and nervous headaches; some say it is powerfully emmenagogue. The vittæ of some species are filled with a pungent oil. A candy is sometimes prepared with the roots boiled in sugar.

Anethum fœniculum, L. Dill. Introd. cult. in S. C.

It is employed in flatulent colic as a carminative and antispasmodic. The oil has been given in hiccough. Milne, in his Ind. Bot. 404, says "The herb boiled in broth, has been used with great success in preventing obesity." See authors.

Daucus carota, Tourn. Carrot. Completely naturalized, says Elliott, in South Carolina and Georgia. Coll. in St. John's; Cha'ston; Fl. April,

Woodv. Med. Bot.; Royle, Mat. Med. 401. Root and seeds stimulant, carminative, and eminently diuretic; employed with great success in strangury, anasarcous swellings of lower extremities, in suppression of urine and painful micturition. Eberle on Diseases of Children, 110; Am. Herbal, 92; Frost's Elems. Mat. Med. 298. Dr. Chapman used a strong infusion in gravel. Mér. and de L. Dict. de M. Méd. 299; Flora Méd. ii. 99; see Chemical Anal. by Bouillon Lagrange, in the Journ. de Pharm. i. 529. Britanet and himself wrote a book on the plant (which may be seen in the N. York Hosp. Lib.). Root contains some volatile oil, a large proportion of pectin, a peculiar coloring principle called carotin, and sugar. Griffith, Med. Bot. 337. The authors alluded to above, contend that the plant acts as a sedative, even topically applied. In the form of a poultice, it calms pain, is antiseptic, and corrects the intolerable fetor arising from internal diseases—as of the ear, for example. Dr. Geo. Wilkes, ophthalmic surgeon, New York, informs us that he finds it invaluable in this respect. Mém. du Museum, iv. 102; Suppl. to Mér. and de L. 1846; Vauquelin upon the Pectic Acid in the Root of the Carrot, Journ. de Pharm.

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xv. 340. The essential oil is regarded as emmenagogue and anti-hysteric. Ancien Journ. de Méd. xxiv. 68. In Germany, it is considered vermifuge. Crantz, Mat. Med. i. 23. Shecut, in his Flora Carol., alludes to its employment in gravel, and in expelling a species of tape worm! A syrup similar to treacle has been obtained from it, and by distillation, a liquor nearly equal in flavor to brandy. Much use is made of this plant in popular practice as a diuretic.

Daucus pusillus, Mx. Wild carrot. Grows on the Savannah River; collected in St. John's; Cha'ston. Bach.

Eberle, Mat. Med. and Therap. ii. 318; Bell's Pract. Dict. 162. Seeds contain more volatile oil than the other species. It, however, possesses nearly the same properties. Used as a diuretic in calculous diseases, suppression of urine, &c.

ARALIACEÆ. (*The Aralia Tribe.*)

Panax quinquefolium, L. Ginseng. Rich soils in the mountains of South Carolina; Fl. May.

Am. Herbal. 157, by Stearns. In China, they drink an infusion of the root instead of tea, and it is well known that they have recourse to it as a last resort in all diseases. Dr. James says, more especially in all cachectic and consumptive cases, and in those arising from debility of any kind. Dr. Healde also alludes to their great confidence in it as a restorative after great fatigue, as an antispasmodic in nervous affections, in coma, and as an aphrodisiac; ʒij of the sliced root are boiled in a quart of water, and ℥ij of the decoction, or ℈j of the root in substance, is employed. Jartoux, in the Phil. Trans. xxviii. 239, states that, after being fatigued by travelling three days, he employed the decoction of leaves internally, and as an application to the feet, and was satisfied of its utility, being completely revived by it. Dr. Wood, in the U. S. Disp. 530, says, it is very little more than a demulcent; but Lindley, Nat. Syst. Bot. 25, thinks that there is no reasonable doubt of the ginseng having an invigorating and stimulant power, when fresh. Big. Am. Med. Bot. ii. 82; Mér. and de L. Dict. de M. Méd. iii. 356, and iv. 176; Flor. Méd. iv. 185; Kaempher, Amoen. Academicæ, v. 218; Histoire du Japon, vi. 218; Burmann, Flora Ind. tab. 29, i.; L'Encyclop. Chinoise, lxcii.; Flora Cochine, 806; Lafitteau, Descrip. du Ginseng. Paris, 1718, i. 12. Dr. Sarrazin introduced it into notice in Europe. Trans. Roy. Acad. Sci., Bartram Com. 61, 1741; J. P. Bregnius, Diss. Med. de radice Ginseng, 1700; Coxe, Am. Disp. 434. Cullen,

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in his Mat. Med. 270, refers to its efficacy in increasing virility. See Mérat, loc. cit. "Avoue qu'un individu qui en avait fait usage dans cet dernière intention, pendant long temps, n'en obtint absolument aucun resultat." S. Vaillant in Acad. des Sci. 1718; Bourdelin, Hist. de l'Acad. 1797; Lafitteau, Mem. concernant la precieuse plante de Ginseng. Paris, 1788; Kalm. Travels, iii. 114; Osbeck's China, 145; Heberden, Med. Trans. iii. 34; Fothergill, Gent. Mag. xxiv. 209; loc. cit. sup.

Aralia spinosa, L. Toothache bush; Angelica tree; Prickly Ash. Collected in St. John's; rich soils along fences. Charleston. Plant often confounded with the Xanthoxylon; properties somewhat similar. See X. fraxineum. Ell. Bot. 373; Mér. and de L. Dict. de M. Méd. i. 379; Coxe, Am. Disp. 100; Shec. Flora Carol. 191; Frost, Elems. 20; Griffith, Med. Bot. 345. It is a stimulating and very certain diaphoretic, "probably to be preferred to any emetic yet discovered among our native plants." The infusion of bark of root is used in chronic rheumatism and cutaneous eruptions, also employed in lues venerea. Pursh states, that a vinous or spirituous infusion of the berries, is remarkable for its power in relieving rheumatic pains, and the tincture is also given in Virginia in violent colics. See Dr. Meara's experiments. Mérat says, it has been used to allay pain caused by carious teeth. Dose, of the saturated tincture, a tablespoonful, three times a day. In South Carolina, this plant is the rattlesnake's master, par excellence, according to the negroes; they rely on it almost exclusively as a remedy for the bite of serpents. We are informed that they use the bark of the fresh root in substance, taken internally, also applying it powdered to the wounded part. Dr. Meara advises that the watery infusion, when employed as a diaphoretic, should be made very weak, as it is apt to excite nausea, and cause irritation of the salivary glands.

Aralia racemosa, L. Spikenard. Grows, according to Dr. M'Bride, in the mountains of South Carolina.

Ell. Bot. Med., Note, i. 373. The decoction of the root is much esteemed by those residing in the mountainous districts as a remedy in rheumatism; no doubt possessed of stimulating properties. Michaux cites it as a sudorific. Dr. Sarrazin informs us, that it is very useful as a cataplasm in inveterate ulcers; generally adapted to similar purposes with the A. nudicaulis. Mér. and de L. Dict. de M. Méd. i. 376; U. S. Disp.; Am. Journ. Med. Sci. xix. 117.

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Aralia nudicaulis, Mx. Wild sarsaparilla; wild liquorice. Mountains of South Carolina; Fl. June.

Raf. Med. Flora, i. 53; U. S. Disp. 116. A gently stimulating diaphoretic; thought to be alterative, and used in popular practice in rheumatism, syphilis, and cutaneous affections. Mér. and de L. Dict. de M. Méd. i. 375. Dr. Meara records the roots as possessing the virtues of sarsaparilla. Mus. Med. Philosoph. iv. The infusion has been employed with success in zona, and as a tonic in debility of stomach (*les relâchemens d'estomac*). Coxe, U. S. Disp. 99; Lindley's Nat. Syst.; Griffith, Med. Bot. 344; Phil. Med. Mus. ii. 161. Administered in domestic practice, in pulmonary disease, where inflammation does not co-exist.

BERBERACEÆ. (*The Berberry Tribe.*)

Berberis vulgaris, Walt. Fl. Carol.
" *Canadensis*, Ph. and Ell.
} Barberry. Grows wild in St. John's, Berkley, near Woodlawn, Pl. Fl. May.

Shec. Flora Carol. (see B. vulgaris), 268; Lind. Nat. Syst. Bot. 30; U. S. Disp. 1233, Appendix. The B. vulgaris of Europe, with which this plant is not identical, though differing from it but slightly, if at all, in medicinal properties, has received considerable attention. They are used as a domestic remedy in jaundice, and in dysentery, and diarrhœa; it is supposed that the acid is specific. From analysis by Buchner, and Herberger, it is shown that the root contains a new principle called berberine, which acts like rhubarb, and with equal promptness and activity. Griffith, Med. Bot. 113; Journ. de Pharm. 1233; Trans. Phil. Soc. 1834; Analysis in Journ. de Pharm. xxiv. 39; Mér. and de L. Dict. de M. Méd. Supplement, 1846, 101. From the berries a syrup is obtained which is adapted to putrid fevers, and those of a low type; a cooling drink is also made with them, and given in similar cases. The root boiled in ley imparts a yellow colour to wool. It was said to have a singular effect upon wheat, growing near it, turning the ears black for some distance around; but this, however, is doubted. We have observed the remarkable irritability of the stamens in the species growing in South Carolina, which, when touched, instantly spring down upon the stigma, and in this way communicate their pollen to it.

SARRACENIACEÆ.

The species of this order are exclusively confined to the bogs of

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this country. Lindley thinks it should also comprehend the Dionæa, which grows in this State, and which also possesses the power of entrapping insects. See D. muscipula.

Sarracenia flava, L., and *variolaris*, M. Fly-catchers. Side-saddle flowers. Diffused; grow in bogs; Charleston; Fl. June.

See Mér. and de L. Dict. de M. Méd. vi. 226, where the Diss. of Dr. M'Bride of South Carolina, in the 12th vol. Trans. Linnæan Soc., is referred to. We have read this description of one of our native botanists, and allude to it with pleasure. We are informed by several gentlemen of this State, that these plants are used in dyspepsia with great service. The roots are undoubtedly possessed of bitter, tonic, and stomachic properties; and we are credibly assured of a number of cases in which relief has been experienced from them. The taste is disagreeable to those using them for the first time, but eventually it becomes pleasant, as we have ourselves experienced. An infusion might serve as a useful substitute for bitters.

In an Article on the medicinal and chemical properties of these plants, published by the committee in the January number (1849) of the Charleston Med. Journal, the attention of the profession is for the first time invited to their reputed value in the treatment of dyspepsia. Several cases are there detailed, illustrating the employment of the Sarracenia. It is supposed by many to relieve most of the distressing symptoms of this affection, among which may be cited—gastralgia, pyrosis, acidity, and the general feeling of malaise, so frequently attendant upon it. In some, it induces considerable diuresis, and in others, soreness of the mouth. In experiments made upon our own person, to ascertain its physiological effects upon a healthy individual, it exhibited a tonic, stimulating influence upon the digestive organs, producing some cerebral disturbance, when persisted in. On one occasion, 320 grs. of the dried root in the form of pills were taken during the course of twelve hours. From the examination made for us by Prof. C. U. Shepard, it contains besides lignin, colouring matter, and traces of a resinous body, an acid, or an acid salt, and also an astringent property, due neither to tannic nor gallic acid, "and a salt of some alkaloid, related perhaps to cinchonia, which, should it prove new, may be called sarracenin." We ascertained the existence of starch in some quantity in the cold infusion and in the decoction, not discovered in the boiled alcoholic solution, which, however, contained some gluten. "In its exhibiting in moderate quantities no very decided nor violent effects upon the animal economy in disease

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consists its excellence. And its peculiar action on the stomach, we think, is the result of a happy combination of elements, which renders it appropriate to the relief of an affection like dyspepsia. Its acid prevents or corrects the undue formation of alkalies, or supplies its own deficiency, the existence of either condition having been assumed as explaining the true pathology of the disease. Its power of neutralizing, or correcting acidity was obvious. Its bitter property, which is abundant, is tonic and restorative; its resinous portion may supply the proper cathartic stimulus, the too inordinate action of which is corrected by the astringent; and this being neither that of the tannic nor gallic acid found in other vegetable tonics, may be superior. Should dyspepsia be a gastric neuralgia, or consist, as Parry thinks, in a condition of hyperæmia; or as, according to Wilson Philip, a chronic gastritis, its relief may be accounted for, by a narcotic principle contained in the plant; the cerebral disturbance, one of its physiological effects upon our own person, giving some colour to the suggestion." (See Art. cit. sup.) A bit of the fresh, or dried root of either species may be chewed, and the juice swallowed, during the day before each meal; it may be given powdered in the form of pill, with a little rhubarb if necessary, or a tincture may be made by pouring a pint of brandy over several ounces of the root, of which half an ounce, diluted, may be taken three times a day. We have lately had cases reported to us, of its marked success in the relief of chronic diarrhœa and dysentery, and we are pleased to learn that it is now widely used in other portions of this State and in Georgia, with very general approbation.

ONAGRACEÆ. (*The Evening Primrose Tribe.*)

Œnothera biennis, Linn. Scabish. Grows in dry pastures; diffused; collected in Charleston district.

Journ. Phil. Coll. Pharm. iv. 292; Lind. Nat. Syst. Bot. 36; U. S. Disp. 1281; Dem. Èlém. de Bot. ii. 444; Griffith, Med. Bot. 304. The root and herb have been employed in cutaneous diseases. Dr. Griffith has used it with success in tetter, applying the decoction to the affected part several times a day, and giving it internally at the same time. He has been successful with it in subsequent trials. The plant should be gathered about the flowering season. The young sprigs are mucilaginous, and can be eaten as salad. Lindley. The leaves of the Œnothera expand in the evening, and continue open all night. Pursh states that, even of a dark night, it can be seen at some distance, owing, he supposes, to some phosphoric property.

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Jussiæa grandiflora, Mich. Grows in bogs "common around Savannah, and in ponds four miles from Charleston." Dr. J. Bachman informs us, that he has seen it in abundance around Charleston for the space of ten miles, from which locality we have specimens. Fl. July. Dr. S. A. Cartwright, of Natchez, asserts that this plant has the power of preventing the development of malaria in regions peculiarly adapted to its generation. He affirms that it "purifies all stagnant water in which it grows, —that of the lakes and bayous inhabited by it being as pure to the sight, taste, and smell, as if it had just fallen from the clouds;" ascribing to the presence and peculiar "hygienic or health preserving properties of this plant" the remarkable exemption of the inhabitants of lower Louisiana from "malarious or miasmatic diseases." "The fact," he adds, "that the region of country in which this aquatic plant abounds is exceedingly healthy, can be established beyond cavil or dispute; it nevertheless contains more stagnant water and swamps than any other inhabited district of the same extent, in the United States." He is quoted in the notes appended by the American editor, to Watson's Pract. Physic, p. 465; and Dr. Wood, in his late work on the Practice of Physic, also makes use of these assertions as if they were established. Dr. C. must seek for the exemption of this section of country from these diseases in other causes, as this plant is abundant around the cities alluded to above, in situations where it is well known that fevers of malarious origin are continually prevailing. We have recently observed this plant growing profusely around Charleston Neck, where intermittent and remittent fevers are notoriously prevalent.

Ludwigia alternifolia, L. Grows in Charleston district; Elliott says rare; seven miles from Beaufort, and at Savannah; collected in St. John's; Fl. Aug.

Mèrat, in the Dict. de M. Méd. iv. 154, says that, in America, a decoction of the root is employed as an unfailing emetic.

Melastomaceæ.

In this order, a slight degree of astringency is the prevailing characteristic; though a large one, it does not contain a single unwholesome species.

Rhexia glabella, Mx. Deer grass. Sorrel; grows in moist pine lands, vic. of Cha'ston; collected in St. John's; Fl. July.

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The leaves of this plant have a sweetish, acid taste, and are eaten with impunity. Deer are said to be fond of them.

MYRTACEÆ. (*The Myrtle Tribe.*)

Punica granatum. Pomegranate; cultivated with success in this State. The bark of the root is a well-known astringent; employed in dysentery and diarrhœa, ℈j of the powder may be given at a dose, or a decoction may be used if this is too strong, as it acts on the nervous system. Carson, in his Illust. Med. Bot. i. 1847, states that it has also been employed with success against tænia.

HAMAMELACEÆ. (*The Witch Hazel Tribe.*)

This order, remarks Lindley, is found in the northern parts of North America, Japan, and China. In our examination of the various authorities on the subject before us, we have frequently been struck with the correspondence prevailing between the species found in this State and those of Japan, and this respects only the medical botany of the two; should the flora of each be compared, a still more universal relation might be established. Professor Agassiz has noticed something of the same kind existing between the fossil botany and the fauna of each.

Hamamelis Virginiana, L. Witch-hazel. Grows along pine land, bays; collected in St. John's, Charleston district; vic. Cha'ston. Bach.

Mér. and de L. Dict. de M. Méd. iii. 452; Coxe, Am. Disp. 310; U. S. Disp. 1258; Matson's Veg. Pract. 201; Griffith's Med. Bot. 350; Rafinesque, Med. Flor. i. 227. It is said to be sedative, astringent, tonic, and discutient. The bark was a remedy derived from the Indians, who applied it to painful tumours, using the decoction as a wash in inflammatory swellings, painful hemorrhoidal affections, and ophthalmias. A cataplasm, and a tea of the leaves, as an astringent, were employed in hæmatemesis. The steam practitioners also administer it in irritable hemorrhoids, and during the bearing-down pains attending childbirth. No analysis has been made, but as it probably contains sedative and astringent principles, attention is directed to it.

CORNACEÆ. (*The Dogwood Tribe.*)

Cornus Florida, L. Dogwood. Well known; diffused in rich shady lands.

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Drayton's View, S. C. 63; Bell's Pract. Dict. 152; Barton's Collec. 12; Eberle, Mat. Med. 303; Chap. Therap. and Mat. Med. ii. 438; Ell. Bot. i. 208; Pe. Mat. Med. ii. 753; U. S. Disp. 277; Ed. and Vav. Mat. Méd. 197; Am. Journ. Pharm. vii. 114; Royle, Mat. Med. 422; Ball. and Gar. 310; Mér. and de L. Dict. de M. Méd. iv. 436; Big. Am. Med. Bot. ii. 73; Shec. Flora Carol. 449; Thacher's Disp. 203; Walker's Inaug. Diss. Phil. 1803; Lind. Nat. Syst. Bot. 49; Frost's Elems. Mat. Med. This well-known plant possesses tonic and anti-intermittent properties, very nearly allied to those of cinchona; in periodic fevers, one of the most valuable of our indigenous plants. "Dr. Gregg states that, after employing it for twenty-three years in the treatment of intermittent fevers, he was satisfied it was not inferior to Peruvian bark." Generally given in conjunction with laudanum. It also possesses antiseptic powers. In the recent state, it is less stimulating than the cinchona bark, but it affects the bowels more; the dried bark is the preferable form. According to Dr. Walker's examination, it contains extractive matter, gum, resin, tannin, and gallic acid; and Dr. Carpenter announces in it a new principle, cornine. Dr. S. Jackson also, from experiment, is satisfied that it contains a principle analogous to quinia. It has been exhibited by Dr. S. G. Morton in intermittent fever, with success. Griffith, in his Med. Bot. 347, mentions that the infusion of the flowers is useful as a substitute for chamomile tea; for analyses, see Am. Journ. Pharm. i. 114; and Phil. Journ. Med. and Phys. Sci. xl. Dose, of the dried bark in powder, is ℈j to ʒj; the decoction is made with ℥j of the root to one pint of water, or the extract may be employed; alcohol also extracts its virtues. The ripe fruit, infused in brandy, makes an agreeable and useful bitter, which may be a convenient substitute for the article prepared in the shops. Barton says, in his Collections, that the bark is valuable in a malignant disorder of horses called yellow water; from the gallic acid it contains, a good writing ink may be made, and from the bark of the fibrous roots, the Indians extracted a scarlet colour. Lindley mentions that the young branches, stripped of their bark, and rubbed against the teeth, render them extremely white. It is often employed by the common people in South Carolina for this purpose.

Cornus sericea, Ph. Red willow, swamp dogwood. Elliott says it grows in the mountains of South Carolina. Sent to us from Abbeville district, by Mr. Reed. Fl. June.

Griffith, Med. Bot. 349. It possesses properties quite similar to

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those of the C. florida, but it is more bitter and astringent. Mr. R. informs us that it is employed to a greater extent in domestic practice in Abbeville. According to B. S. Barton, the bark was considered by the Indians a favourite combination with tobacco for smoking. The young shoots were used to make coarse baskets; and they extracted a scarlet dye from these and the roots.

Cornus sanguinea, L. Grows, according to Elliott, in the valleys among the mountains. Fl. May.

Dict. de Méd. de Férus. ii. 737; Mathiole, Comment. ii. 119; Journ. de Chim. xxxviii. 174, and xl. 107. See, also, Journ. de Pharm. for an account of the oil extracted from it. M. Murion says they afford one-third of their weight of a pure and limpid oil, used for the table and for burning. A case of hydrophobia was said to have been cured by it. Griffith, Med. Bot. 349. There also exists in this, as in the others, a red colouring principle, soluble in water alone.

Cornus stricta. Grows in swamps near Charleston.

Shec. Flora Carol. 449.

LORANTHACEÆ.

Bark usually astringent; berries contain a viscid matter; plants possess the power of rooting in the wood of others.

Viscum verticillatum, L. The V. verticillatum of Ell. Sk. is not that of Linn. T. and Gray. N. A. Flora. Mistletoe. Diffused; grows on oaks. Fl. May.

Mér. and de L. Dict. de M. Méd. vi. 860; Lind. Nat. Syst. Bot. 50; Le. Mat. Med. ii. 456; Journ. de Méd. lxx. 529; Eberle, Dis. of Children, 522. Dr. Barham, in the Hortus Americanus, says that the fruit of the mistletoe cures epilepsies, pleurisies, coup de soleil, &c. Dem. Èlem. de Bot. iii. 556; employed in paralysis. Thornton's Fam. Herb. 333. Fothergill, Dr. Wilson, and Gilbert Thompson, use it "with great effect in epilepsy." So, also, Dr. Fraser, who published a work on it. Wade's Pl. Rariores, 82. Eberle, "Dis. of Children," alludes to its employment in infantile epilepsy. Some writers refer to the European species; but this is supposed to be identical with it. The seeds contain a viscid substance resembling birdlime in appearance, which is insoluble both in water

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and in alcohol. In Dr. Hunter's edition of Evelyn's Sylvia, it is said to prevent the rot in sheep.

CUCURBITACEÆ. (*The Gourd Tribe.*)

This order is closely allied to the Passifloraceæ, and is found in most abundance in hot countries. Most of them are valuable articles of food, but are pervaded by a bitter laxative quality, which in the colocynth gourd becomes an active purgative principle.

Cucumis pepo, W. Pumpkin. Cultivated very successfully in South Carolina.

Shec. Flora Carol. 488. The seeds afford an essential oil, which might be made of some value; when triturated with water, they furnish a cooling and nutritive milk, and when boiled to a jelly, they are said by Bechstein to be a very efficacious remedy for retention of urine. The fruit is much used on the plantations in this State, as an article of food both for men and animals; pies and preserves of an agreeable flavour are made of them. The musk melon (Cucumis melo), and cucumber (C. sativus), are also cultivated in South Carolina.

Cucurbita lagenaria, L. Gourd; calabash. Grows in cornfields, and along fences; vic. of Cha'ston; Richland, Gibbes; collected in St. John's; Fl. June.

Linn. Veg. Mat. Med. 180; Ed. and Vav. Mat. Méd. 563; Le. Mat. Med. i. 379; Mér. and de L. Dict. de M. Méd. ii. 492. An infusion has been found useful in inflammation of the urinary passages, and the seeds have been employed in rheumatism, strangury and nephritis. Shec. Flora Carol. 479. "Water, which has lain for some time in the fruit of this plant, becomes violently emetic and cathartic." The shells of the dried fruit are sometimes so capacious as to contain four gallons of water; convenient receptacles, water-flasks, dippers, milk-pans, &c., are made of them. They must first be deprived of their acrid principle by boiling; moulds for buttons are fashioned out of them, and they are much used for these purposes by the negroes on the plantations. The water melon (C. citrullus) grows luxuriantly in South Carolina. It is well known that the juice of the latter is diuretic, and the seeds, by trituration, or by being boiled in water, afford a demulcent and diuretic drink. The various species of squash are likewise cultivated here.

Melothria pendula, L. Creeping cucumber. Grows in rich shaded soils; collected in St. John's, Charleston district; Fl. June.

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Journ. de Chim. Méd. iii. 498; Mér. and de L. Dict. de M. Méd. iv. 322; Griffith, Med. Bot. 311. The seeds act as a drastic purgative —a half a one is a dose for an adult. Martius states that three or four will act powerfully on a horse. Journ. de Chim. loc. cit. sup.

CACTACEÆ. (*The Indian Fig Tribe.*)

Fruit very similar in its properties to that of the currant tribe; often refreshing, sometimes mucilaginous and insipid.

Opuntia vulgaris, Mill. T. and Gray. *Cactus opuntia*, of Ell. Sk.	Grows in dry pastures; Fl. May.

Mér. and de L. Dict. de M. Méd. vi. 11. The fruit is said to be eatable; the leaves cut transversely are applied to tumours as a discutient; the decoction is mucilaginous, and we are informed that it is much used in Alabama as a demulcent drink in pneumonic and pleuritic inflammations.

Cactus cochinilifer. Elliott says that it is probable that other species exist, but he does not include this in his Sketches of the Bot. of South Carolina. Shecut, however, in his Flora Carol. 319, remarks, that "We are indebted to Dr. Garden, of South Carolina, for the discovery of this tree here," well known as the one upon which the cochineal insect feeds. T. and Gray, however, do not include it in their N. A. Fl. The fruit tinges red the urine of those who eat it; and the leaves, rubbed up with hog's lard, are useful as a topical application to prevent mortification.

CRUCIFERÆ. (*The Cruciferous Tribe.*)

Lindley states that the universal characteristic of this order is the possession of anti-scorbutic and stimulant qualities, combined with an acrid flavour. The species contain a great deal of nitrogen, to which is attributed their animal odour when rotting.

Capsella Bursa-pastoris, Mœnch and T. and G. *Thlaspi*, Linn. and Ell. Sk.	Grows in damp pastures; collected in St. John's; Fl. May.

Ray's Cat. Plantarum, 47; Bergius, Mat. Med. ii. 389; Le. Mat. Med. i. 243; Mér. and de L. Dict. de M. Méd. vi. 732. It astringes and constipates; hence employed in dysentery, diarrhœa, and bloody urine; the juice placed on a piece of cotton, and inserted in the nostril, will arrest hemorrhage.—"Externe vulneribus soli-

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dandis adhibeeter nec sine successu." Fl. Scotica, 342; Linn. Veg. M. Med. 128.

Sisymbrium nasturtium, L. and Ell. Sk. *Erysimum* of Bot.	Cress. Nat. in the upper part of this State; vic. of Charleston. Bach. Fl. March.

Fl. Scotica, 351. The young leaves furnish an agreeable salad; the plant was esteemed useful as an antiscorbutic, and was employed in removing obstructions of the liver, viscera, jaundice, &c. Thornton's Fam. Herb. 618. The juice acts as a stimulant and diuretic. Haller says, "We have seen patients in a deep decline cured by living almost entirely on these plants." According to Tournefort, the juice, snuffed up the nose, cured cases of polypus of that organ. See Edinburgh New Disp., Flora Med. iii. 138; Pliny, lib. xix. chap. 8; xx. chap. 13. Hoffmann and Cullen spoke highly of it as furnishing a mucilaginous application for the heads of infants affected with eruptions. It was acknowledged to have an effect upon maladies of the skin, engorgement of the abdominal viscera when the blood is depraved, in feeble digestion, &c. U. S. Disp. 1226. This plant is also vaunted in incipient phthisis, in chronic catarrhs, in maladies of the bladder and kidneys, and in hysterical affections. It contains a very bitter and odoriferous essential oil, the seeds yielding 56 per cent. of fixed oil. See De Cand. Phys. Vég. i. 298; Journ. Gén. de Méd. xxviii. 136; Barbier, M. Méd. 242. Moreau asserts that vertigo and discoloration of the face are produced in those eating this plant; but this is an effect unnoticed by others.

Sisymbrium officinale, Fide Gray. *Erysimum* " Lin. and Ell. Sk.	Hedge mustard.

This is not included by Mr. Elliott in his Sketches of the Plants of South Carolina. It was one of the specimens sent to Professor Gray, and determined by him; collected in St. John's, Berkley, Charleston district. The herb is said to be diuretic and expectorant; the seeds possess considerable pungency, and have been recommended in chronic cough, hoarseness, and ulceration of the mouth and fauces; the juice of the plant in honey or the seeds in substance may be used.

Sisymbrium amphibium, L. Water radish. Rare; roots immersed; collected on causeway near Brunswick; Pl. T. W. Peyre's, in St. John's; vic. of Cha'ston.

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Mér. and de L. Dict. de M. Méd. vi. 365. Recommended for tænia by Didelot, and in the old works as an antiscorbutic. Mérat says the "young leaves are eatable in the spring—probably possessed of similar properties with the S. nasturtium."

Sinapis nigra. Mustard. Cultivated in South Carolina. Therapeutic virtues well known.

VIOLACEÆ. (*The Violet Tribe.*)

Roots more or less emetic; a property which prevails to a greater extent in the South American species, which are generally less herbaceous.

Viola pedata, Mich. Found in the upper districts; sparingly in the lower; Richland, L. Gibbes; Fl. May.

U. S. Disp. 743; Griffith, Med. Bot. 140. The roots of nearly all the species of this genus possess a nutritive and an emetic principle, called violine, allied to that of ipecacuanha, but more uncertain in its operation. This is said to replace the European plant, and, according to Dr. Bigelow, is valuable as an expectorant and demulcent in pectoral affections.

Viola arvensis, D. C.

Griffith, Med. Bot. 141. This and the V. tricolor have received considerable attention from European writers, especially the German. Strack made them the subject of a discussion in 1776, and since then, the observations of Metzer, Clouquet, and others have shown that they are possessed of much efficacy in the treatment of cutaneous diseases, and especially of that obstinate and unpleasant eruption, crustea lactea. The fresh plant, or its juice, is to be used, as drying destroys its active qualities. Strack states that, when the remedy has been given for some time, the urine becomes extremely fetid, smelling like that of the cat, op. cit. supra. Attention is invited to it. (See V. tricolor.)

Viola tricolor, Linn. Heartsease. Cultivated in gardens; Fl. May.

Trous. et Pid. Traité de Thérap. et de Mat. Méd. ii. 15; U. S. Disp. 743; Le. Mat. Med. ii. 453; Griffith, 40; Thornton's Fam. Herb. 731. It was formerly considered a valuable remedy in epilepsy, ulcers, and scirrhus. See Störck de V. tricolor, Erlang. 1782. Metzer de crustea lactea infantum, ejusdem que remedio præmio coronavit. 1776. Lond. Med. Journ. A handful of the fresh, or ℥iss

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of the dried herb, was boiled in milk, which was taken twice a day; bread soaked in this was also applied to the affected parts. It was much boasted of as a remedy in the latter disease; see Mér. and de L. and the Art. V. arvensis. Bergius, speaking of these two, says that half an ounce in twelve of water produces a consistent and valuable demulcent jelly.

Viola palmata, Linn. Hand-leaved violet. Collected in St. John's, vic. of Cha'ston; Fl. March.

Ell. Bot. 300, Med. Notes. The plant is very mucilaginous. It is employed by negroes for making soup, and is commonly called wild okra. The bruised leaves are used as an emollient application.

Viola cucullata, Ait. Common blue violet. Grows in damp pine lands; collected in St. John's; vic. of Cha'ston; Fl. May.

Le. Mat. Med. i. 223. Probably possessed of similar properties with the others; a decoction is given to children in eruptive diseases. These plants might very conveniently be used in domestic practice, and we would invite attention to their further employment.

DROSERACEÆ. (*The Sun Dew Tribe.*)

Plants generally slightly acid; acrid and poisonous to cattle.

Drosera rotundifolia, Linn. Sun dew. Grows in damp spots in the low country of South Carolina; Richland; collected in St. John's; Fl. June.

Bull. Plantes Vén de France. Vicat mentions it as an active and corrosive plant; the liquor which exudes from the hairs destroying warts, corns, &c. Dém. Élém. de Bot. ii. 334. M. Geoffroi asserts that it is a valuable pectoral, employed in ulcers of the lungs, asthma, &c., the infusion being generally used. The juice has been recommended in hydrops, diseases of the kidneys, ophthalmias, &c. Mér. and de L. Dict. de M. Méd. ii. 690. Shec., in his Flora Carol. 519, confirms the opinion in reference to the corrosive property of the juice, and adds that, with milk, it furnishes a safe application for removing freckles; any part of it will curdle milk. Fl. Scotica, 109. It is thought to be very injurious to sheep, producing in them consumption or rot. M. Berlace affirms (Esquiss. Hist. Bot. Aug.) that cattle avoid it on account of an insect (Hydra hydatula) which feeds on it. This plant is quite diminutive, and has heretofore received very little attention; we see no mention made of it in our Am. Disps.

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PASSIFLORACEÆ. (*The Passion Flower Tribe.*)

Passiflora lutea and incarnata, Linn. May apples; passion flowers. Grow in pastures.

The fruit of these beautiful climbing plants contain a sweetish, acid pulp, and are eatable. Several of the species are employed in medicine; but these have received no attention, being more remarkable on account of the structure of their flowers. One is quite diminutive.

HYPERICACEÆ. (*The Tutsan Tribe.*)

The juice of many of the species is slightly purgative and febrifugal.

Ascyrum Crux-Andreæ, W. " *multicaule*, Mx.	Peter'swort. Collected in dry pine land soils, St. John's, vic. of Cha'ston; Fl. July.

The infusion of the bruised root and branches of this plant was used by an Indian with success in the case of a female, under our observation, with an ulcerated breast which had resisted all other attempts at relief. We have since seen it employed with entire satisfaction, on the person of an infant having a painful enlargement of the submaxillary gland. No further opportunity has been afforded of ascertaining its properties with certainty; but it seems to be possessed of some power as a resolvent in discussing tumours, and reducing glandular enlargements; given internally, and applied topically. The taste is somewhat acrid. We would invite farther examination.

Hypericum sarothra, Mich., T. and G. *Sarothra gentianoides*, Linn. and Ell. Sk.	Pine weed; orange grass. Grows in dry pastures; collected in St. John's, vic. of Cha's-ton; Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 226; Journ. de Méd. lxxx. 360. It is employed as an aperient in inflammatory affections.

ACERACEÆ. (*The Sycamore Tribe.*)

Acer rubrum, Linn. Red maple. Diffused.

Shec. Flora Carol. 80. The wood is much used in the manufacture of chairs, gun-stocks, &c.; the grain is sometimes beautifully curled.

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In a communication received from I. Douglass, M. D., of Chester district, S. C., his correspondent, Mr. M'Keown, states that the country people consider a strong decoction of the bark, with white sugar, used as a wash, a safe and certain cure for ordinary ophthalmia.

Acer saccharinum, Linn. Sugar maple. Diffused, but more abundant in the upper districts; found sparingly at the head waters of Cooper River; St. John's, Berkley; Fl. Feb.

Shec. Flora Carol. 90. Pure flake manna has been discovered in this species. Sugar extracted from it is an article of trade; it is employed medicinally also. The wood is esteemed in the manufacture of saddle-trees.

ÆSCULACEÆ. (*The Horse Chestnut Tribe.*)

The seeds contain a great quantity of a nutritive starch, also a sufficient amount of potash to be useful as cosmetics, or as a substitute for soap.

Æsculus pavia, L. Horse chestnut; buck-eye. Diffused. We have observed it in Greenville, Fairfield, and Charleston districts; vic. of Cha'ston. Bach. Fl. May.

Shec. Flora Carol. 105; Griffith's Med. Bot. 214. The fruit is about the size of a small lemon, and of a beautifully polished mahogany colour externally; it contains a great deal of starch. Dr. Woodhouse prepared a half a pint from the nuts, which retained its colour for two years. It is superior to the famous Poland starch, and does not impart a yellow colour to cloth. It is said that the washing from this is narcotic and poisonous. Dr. M'Dowel tried the powder of the rind, and states that ten grs. were equivalent to three of opium; a strong decoction is recommended as a lotion to gangrenous ulcers. A strong decoction of the root is said to relieve toothache when held in the mouth. The fresh kernels, macerated in water, mixed with wheat flour into a stiff paste, and thrown in pools of standing water, intoxicate fish, so that they float on the surface, and may be taken: reviving, however, when placed in fresh water; we are informed that large quantities were formerly caught in this way in the swamps along the Santee River. See, also, Ell. Bot. Med. Notes. The roots are preferred even to soap for washing and whitening woollens, blankets, and dyed cottons, the colours of which are improved by the process. Satins washed in this manner, and carefully ironed, look almost as well as new.

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POLYGALACEÆ. (*The Milk-wort Tribe.*)

Bitterness in the leaves, and milk in the roots, are their usual characteristics.

Polygala Senega, L. Seneca snakeroot; mountain flax. Mountainous districts of S. C.; Fl. July.

Thornton's Fam. Herb. 629. An active stimulant, increasing the force of the circulation, especially that of the pulmonary vessels; hence, found very useful in typhoid inflammation of the lungs. Dr. Brandreth, of Liverpool, has derived great service from its employment, in cases of lethargy, in the form of an extract combined with carb. ammoniæ. It has been given in hydropic cases, and as it sometimes provokes plentiful discharges by urine, stool, and perspiration, it is frequently the means of removing the disease after the ordinary cathartics, diuretics, and hydragogues have failed. The Indians used it in snake bites given internally, and applied topically; if beneficial, it only acts as a diffusible stimulant; it is administered, also, as a gargle in croup. A principle called senegin has been discovered in it; and one by Reschier, called polygalic acid. Anevenne is also said to have detected two, polygalic and Virgineic, the first of which will unite with bases, the second volatile, oily, nauseant, and emetic, in small—diaphoretic, expectorant, and diuretic in large—doses. Stephens & Church, 103. See Analysis in Journ. de Pharm. xxii. 449. One of the principles referred to is said not to differ from saponine. Supplem. to the Dict. de M. Méd. by Mér. and de L. 1846, 578; M. Guibourt, in his "abridged Hist. of simple drugs" (in French); Carson's Illust. Med. Bot. 1847, pt. i.; L. Feneulle's Annal. Journ. de Pharm. ii. 430. It has been employed in pleurisy. See Tennent's Essay on that disease; Duhame, Mém. de L'Acad. de Paris, 1739, 144; M'Kensie's Med. Obs. and Enquiries, ii. 288; De Haen. Ratio Medendi; F. d'Ammon sur l'emploi et l'utilité de la racine du P. senega dans plusieurs mal de l'œil; Annal. de Chim. de Heidelberg. Dr. Ammon, of Dresden, in this paper, employs it in ophthalmias, after the inflammatory stage is passed; it is said to prevent the formation of cataract, and to promote the absorption of pus in hypopion; he reports two cases; it is adapted, in fact, to all cases of exudation, by its power of promoting discharge. Suite des Expériences in Bull. des Sci. Méd. xx. 241. Bretonneau gave four to five grains, every hour, in croup; it opposes the formation of the diphtheritic membrane. Bull. des Sci. Méd. de Ferus. xi. 61; Mém. sur le Senega, Acad. des Sci. See Mérat, loc. cit. Dr. Milne spoke highly of the decoction, joined

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with bitartrate of potash, in dropsy. Dr. Percival administered it in hydrops pectoris. Linnæus, in his Veg. Mat. Med. 137, speaks of this plant as a specific in croup (specificum in phlogose hinc officinis nostris dignissima). Lind. Nat. Syst. Bot. 87. Stimulant, diuretic, sialagogue, expectorant, purgative, emetic, sudorific, and also emmenagogue. U. S. Disp. 649; Big. Am. Med. Bot. ii. 27; Bart. M. Bot. ii. 111; Mér. and de L. v. 424; Dict. des Sci. Méd. li. 1; Journ. de Chim. Méd. ii. 431; Journ. Analyt. i. 339. Employed in nervous affections, and hectic fever; in hydrothorax, from its stimulating effect on the kidneys, and in diseases of the lungs, from its augmenting the absorbent forces. Anc. Journ. de Méd. lxxvi. 53; Detharding, Diss. de Senega, 1749; C. Linn. Diss. upon the Root of the Senega, Argentorati, 1750; Kielhon, Diss. Frankfort, 1765; Helminth, at Edinburgh, 1782; G. Folchi, Rech. chimico Thérap. sur la racine du polygala du Virginie. In pneumonia, after bleeding, and in the typhoid stage, it is one of our best remedies for promoting expectoration; at an earlier period, it is too stimulating. Much use is made of it on the plantations in this State, for this purpose. According to Dr. Bree, it is eminently useful in the asthma of old people, and in the latter stages of croup. It has been employed successfully in chronic rheumatism, and Dr. Chapman also found it very efficacious in recent cases of amenorrhœa. Frost's Elems. 258; Griffith's Med. Bot. 225; Archer's Med. and Phys. Journ. i. 83; Bree on Asthma, 258; Massie's Inaug. Diss. Phil. 1803; Thacher's Disp. 319; N. Eng. Journ. vii. 206. In croup, it is often given in the form of hive syrup; the best form, however, is a decoction, made by boiling ℥j of root in one pt. and a-half of water, till it is reduced to a pint, the dose of which is a tablespoonful; thirty grains of the powdered root may be given in substance. This plant is employed by the steam practitioners. See Howard's Syst. of Bot. Med. 343.

Polygala sanguinea, L. Nutt. Grows in flat, pine lands; abundantly near Pittsburg; sent to us from Abbeville, by Mr. Reed; vic. of Cha'ston. Bach. Fl. June.

Lind. Nat. Syst. Bot. 86; Barton's Med. Bot. ii. 17. A stimulating diaphoretic, similar, it is supposed, in properties to the above. Mér. and de L. Dict. de M. Méd. v. 424; Griffith, Med. Bot. 225.

Polygala paucifolia, Willd. Grows in the mountains of South Carolina; Fl. Aug.

Griffith, Med. Bot. 227. Rafinesque, in his Med. Flora, says it is

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possessed of active properties; the root having a sweet, pungent, aromatic taste, similar to that of the winter green (Gaultheria procumb.); he thinks it milder than the P. senega, and therefore adapted to cases in which that is inapplicable. Griffith does not agree with him, attributing to it merely tonic and bitter properties.

Polygala polygama, Walter. Vic. of Cha'ston.
U. S. Disp. 558.

LINACEÆ. (*The Flax Tribe.*)

Linum usitatissimum. Flax. Cultivated in South Carolina.

It is cultivated here pretty much on account of the seeds, which are well known for their valuable demulcent properties. For much useful information in reference to the economical application of this plant, see Mér. and de L. Dict. de. M. Méd. Sup. 1846, 435.

MALVACEÆ. (*The Mallow Tribe.*)

They abound in mucilage, and are totally destitute of all unwholesome qualities.

Malva rotundifolia, L. { Low mallows. Naturalized; grows around buildings; Richland; vic. of Cha'ston; Fl. June.

U. S. Disp. 444. A substitute for M. Sylvestris, which possesses valuable demulcent properties. Woodv. Med. Bot. 554, tom. 197. It is very emollient, and is employed in catarrhal, dysenteric, and nephritic diseases, and wherever a mucilaginous fluid is required. It is administered in the shape of emollient enema, and it forms a good suppurative or relaxing cataplasm in external inflammations. Mér. and de L. Dict. de M. Méd. ii. 207. It was highly regarded by the ancients. "Pythagore regardait leur usage comme propre à favoriser l'exercice de la pensée." Hippocrates employed it as we do for gargles and collyriums, as an application to heated and inflamed parts, as a vehicle for pectoral and anodyne medicines, and for those administered in diseases of the urinary passages.

Abutilon Avicennæ, Gærtn., T. and G.
Sida abutilon, Linn. and Ell. Sk. { Indian mallows. Grows at Granby in Richland district, and in Georgia; vic. of Cha'ston. Bach. Fl. July.

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Lind. Nat. Syst. Bot. 96; Mér. and de L. Dict. de M. Méd. vi. 338. The plant is said to be cultivated in China as a substitute for hemp. The flowers are employed as an ingredient in emollient applications.

Hibiscus Moscheutos, L. Marsh mallow. Collected in St. John's, vic. of Cha'ston.

Bergius, M. Med. ii. 629. This also is possessed of demulcent properties; a convenient substitute for the above.

Hibiscus esculentis, Okra. Introduced from Africa.

The fruit and pods afford the well-known valuable vegetable, so largely used in the Southern States in combination with tomatoes in making soup. It is very mucilaginous, and, infused in water, forms a suitable vehicle for medicines prescribed in diseases of the mucous passages, for enema, &c. Some information on this plant may be obtained in the Journ. de Pharm. vi. 383. The parched seeds afford a tolerably good substitute for coffee; the difference can with difficulty be detected. It is sometimes used for this purpose among the negroes on the plantations in South Carolina.

Gossypium herbaceum, Linn. Cotton. A native of tropical America. The long staple, including the varieties of sea-island black seed, and mains, grows best in the lower country, and the short, or green seed, in the upper districts. Prescott states that the Spaniards found it in Mexico. See "Conquest of Mexico."

Mér. and de L. Dict. de M. Méd. Supplem. 1846. This was the plant known to the ancients as the Byssus of old writers. Herodotus, t. iii. 134, of Durger's Ed.; Chateaubriand, Journ. to Jerusalem, 1777; see Révue Médicale, Feb. 1845, 225, for Observations on the Employment of the Cotton Fibre in Dressing Wounds; Ann. de Chimie, 427, 1845; Binol's Letters on the Cultivation of Cotton in India; C. Delasterie on the G. herbacea and its Cultivation, Paris, 1808; Lessier sur la Culture du Coton en France; Gerspach, Considérations sur l'influence des filatures du Coton sur la santé des ouvriers, Paris, 1827; Obs. on the Employment of Cotton in the Treatment of Blisters, 1830; Some Reflections by F. T. Saint Hiliare on Wounds, and their Treatment with Cotton (in French), Montp. 1830; Sicand, Obs. on the Employment of the Cotton Fibre in Surgery, and a Memoir on the different Species cultivated in Naples, op. cit. sup.; Griffith, Med. Bot. 163; Dr. Mac Fadyen

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(Fl. Jamaica) considers the species only as varieties. Humboldt saw them growing in Central America at an elevation of 9000 feet. The flowers are emollient like mallows, and used for similar purposes; the roots are employed in India in diseases of the urinary organs. See Ainslie. In Brazil, a decoction of the leaves steeped in vinegar is said to relieve hemicrania. According to Martin, the seeds, which afford much oil, are emollient, and are employed in emulsions, injections, and diseases of mucous passages. The oil is afforded by the seeds in sufficiently large quantities to be exported. It might be made a useful article on the plantations, as it does not deprive the seeds of their valuable properties as a manure. When boiled, they furnish an excellent food for cattle, but are poisonous to hogs when eaten in the raw state. Much use is made of the roots in this state, in the treatment of asthma, a decoction being employed. It appears to have, moreover, a specific action on the uterine organs. Dr. Ready, of Edgefield district, informs us that his attention was called to its emmenagogue properties, by an article which appeared in a journal, published some years since. (New Orleans Med. Journal.) He has since used it in suppression of the menses, but more particularly in many cases of flooding, with entire success. It seems to produce as active contractions of the uterus as ergot itself. ℥iij of the root are infused in one pint of boiling water, of which f℥iij—f℥iv are taken internally every fifteen minutes. More extended experiments with this remarkable plant, in cases of this description, might furnish very valuable results, and we would invite particular attention to it. See also Pe. Mat. Med. ii. 568; Med. and Surg. Journ. xiii. 215; U. S. Disp. 357; Lond. Med. Gazette, Nov. 8, 1839; West. Journ. Med. and Surg. 1840; Royle, Illust. 84, and Mat. Med. 288; Mér. and de L. Dict. de M. Méd. iii. 409; Marcgrave's Brazil, 60; Dict. des Sc. Nat. xxxiv. 15; and Gov. W. B. Seabrook's (of S. C.) paper on the cotton plant.

TILIACEÆ. (*The Tender Tribe.*)

They have all a mucilaginous, wholesome juice.

Tilia Americana, Linn., T. and G.
" *glabra*, Vent. and Ell. Sk.
} Bass wood. An ornamental tree, found in the mountain valleys of South Carolina.

Ell. Bot. 22. The bark, when macerated, forms a strong cordage used for domestic purposes. The wood is white, and soft, and is used by carriage and cabinet makers.

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MELIACEÆ. (*The Bead Tree Tribe.*)

Bitter, astringent, and tonic properties characterize the species of this order. Some of them are active and dangerous.

Melia Azedarach, Linn. Pride of India. Nat.; diffused; grows in the streets of Cha'ston; Fl. May.

Chap. Therap. ii. 70; Ell. Bot. 475; Mér. and de L. Dict. de M. Méd. iv. 290; U. S. Disp. 135; Royle, Mat. Med. 308; Bell's Pract. Dict. 87; Eberle, Mat. Med. 207; Frost's Elems. pt. 1; Archives Générales de Méd. xvii. 112; Lind. Nat. Syst. 102; Coxe, Am. Disp. 128. Barton considered it our most active anthelmintic. It is also a febrifuge, adapted to verminous fevers, where no worms are voided. Dict. des Drogues, par Chevallier, iii. 27. Tournon relates a case where a little girl was thrown into convulsions by eating three of the seeds. Mérat also mentions cases. Journ. Gén. de Méd. xlviii. 25; Gazette de Santé, Mars, 1824. We have frequently seen them eaten by children in South Carolina with no bad effect. As an anthelmintic, ℥iv of the bark of the fresh root are boiled in one pint of water, till it becomes of the consistence of coffee, of which from ℥i—ss may be given every two hours. It should be followed by a cathartic. The dried berries have also been employed against ascarides, tænia, and verminous maladies generally. According to Thacher, the pulp of the berry is used advantageously as an ointment in tinea capitis. The decoction of the leaves is regarded as astringent and stomachic, and Dr. Skyston says he uses it with success in hysteria. This plant is employed in Java and Persia. See Rév. Médicale, iv. 82. The tree is planted around stables, in order that horses, by eating the berries, may be prevented from having "bots." It is much valued in this State as a shade tree, growing equally well in dry pine land residences and in cities; during the expansion of the flowers, however, it gives out a disagreeable odour. It is easily blown down, and is not long lived. The wood is beautifully grained, and adapted for table covers, drawers, &c., never being injured by worms.

AURANTIACEÆ. (*The Orange Tribe.*)

Citrus aurantium, W. Orange. This well-known tree is cultivated in Charleston, and grows abundantly in Beaufort district, on the sea coast.

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RHAMNACEÆ. (*The Buckthorn Tribe*).

Ceanothus Americanus, L. New Jersey tea-tree. Two varieties exist in this State. Diffused in dry pine barrens; Richland; collected in St. John's; vic. Cha'ston; Fl. July.

Lind. Nat. Syst. Bot. 108; Ferrein, Mat. Med. iii. 338; U. S. Disp. 1240; Ell. Bot. Med. Notes, 291; Mér. and de L. Dict. de M. Méd. ii. 165; Boston Med. and Surg. Journ. 1835. See also the Supplement to Mér. de L. Dict. de M. Méd. 1846, 155. This plant possesses a considerable degree of astringency, and has been used in gonorrhœal discharges. The Indians employed it in lues venerea, preferring it to lobelia; if the case was violent, the root of the blackberry (Rubus villosus) was mixed with it. Stearn's Am. Herbal, 97. Referring to its anti-syphilitic powers, Ferrein says: "Elle guerit aussi en moins de quinze jours, les veneriens les plus invéterés." It is not now supposed to be endowed with any very decided virtue in this respect. Dr. Hubbard prescribes it with advantage in the aphthous affections of infants, in malignant dysentery, and in other maladies dependent upon debility; he usually combines with it a little borax. See Journ. de Pharm. xxiii. 354. Mr. Tuomey, State Geol., informs us that much use is made of it in domestic practice in Chesterfield Dist. An infusion of the leaves was employed during the Revolutionary war as a substitute for tea. We have experimented with the leaves, and obtained a liquor somewhat resembling common tea both in colour and taste. It imparts to wool a fine, persistent, cinnamon, nankeen colour.

EUPHORBIACEÆ. (*The Euphorbium Tribe.*)

The general property, according to Jussieu, is an excitant principle, residing principally in the milky secretion, and proportioned in its strength to the abundance of the latter.

Buxus sempervirens. Box. Ex.; cultivated in gardens.

Bergii, Mat. Med. ii. 799; Ed. and Vav. Mat. Méd. 512; Le. i. 244; Griffith's Med. Bot. 602. The leaves have been affirmed to be violently purgative, and are employed as a substitute for guaiacum. Dém. Élém. de Botanique, iii. 434; Bull. Plantes Vén de France. A fetid oil is obtained from it, and the wood is prized by engravers for their blocks.

Ricinus communis. Castor oil plant. Ex. Grows luxuriantly in rich spots. This valuable plant thrives so well in this State, that it

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might be made a source of profit. On some of the plantations, the seeds are boiled, and the supernatant oil given as a cathartic. It might with great advantage be more generally used. It is so well known as to need neither reference nor further comment. See Author's passim.

Jatropha stimulosa, Mx. Grows in dry pine land; vic. of Chas'ton; collected in St. John's; Richland, Dr. L. Gibbes; Fl. Aug. The leaves are prickly, and highly irritating when applied to the skin. It might be employed like the nettle (Urtica), as a counter-irritant in epilepsies and diseases requiring stimulating applications.

Acalypha Virginica, L. Grows in dry, fertile lands; vic. of Cha'ston; collected in St. John's, Berkley; Fl. Sept.

Ell. Bot. Med. Notes, ii. 645. Said by Dr. Atkins, of Coosawhatchie, to be expectorant and diuretic; he has employed it successfully in cases of humid asthma, ascites, and anasarca.

Stillingia sylvatica, L. Queen's delight. Collected in the Pine barrens of St. John's, Berkley, in great abundance; Richland; vic. of Cha'ston; Fl. Aug.

U. S. Disp. 687; Frost in So. Journ. Med. and Pharm., Oct. 1846; Mér. and de L. Dict. de M. Méd. vi. 535. This plant exudes a milky juice, very pungent to the taste, and flowing in great abundance from the bruised surface. It is used to some extent in this State, as an alterative in scrofula, in syphilis, in cutaneous diseases, and in the composition of diet drinks; it adds to the efficacy of sarsaparilla. We are informed by a physician residing in South Carolina that he has treated syphilis successfully with it. It is believed to be possessed of valuable properties, and greater attention should be paid to it by those living in the country, where it is easily obtained.

Stillingia sebifera, L. Tallow tree. Nat. from China; collected in St. John's, forty-five miles from the ocean. We have seen it growing abundantly near Cha'ston on the King street road.

Mér. and de L. Dict. de M. Méd. ii. 476; see Croton sebif. of Mich. An ointment made from this is applied in nocturnal fevers. The Chinese, according to Thunberg, employ the concreted oil extracted from the plant, in manufacturing candles. The Reporters of the Patent Office, for 1848, speak very favorably of it, and recommend its introduction, seeming not to be aware of its being already found here. See their method of extracting the oil.

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Euphorbia corollata, L. Wild hippo. Collected in St. John's, Berkley; Charleston Dist.; in dry soils; vic. of Cha'ston; Fl. Aug.

Frost's Elems. Mat. Med. 82; Bell's Pract. Dict. 199; Am. Journ. Med. Sci. xi. 22; U. S. Disp. 321; Big. Am. Med. Bot. iii. 119; Royle, Mat. Med. 542; Mér. and de L. Dict. de M. Méd. iii. 179; Clayton's Phil. Trans. Abridg. 331; Zollickoffer, Mat. Med. 1819; cit. in Bart. loc. sup.; Coxe, Am. Disp. 272; Griffith, Med. Bot. 593. It is emetic, diaphoretic, and cathartic. Dr. Zollickoffer thinks that, as a diaphoretic, combined with Dover's powder, it is not inferior to the ipecacuanha. He tried it in seven cases. Twenty grains of the powdered root would produce emesis, sometimes followed by hypercatharsis. Dr. M'Kean states that twelve grains of the root in substance have double the purgative power of an equal quantity of jalap. "Combined with opium and the sulphate of potassa, an excellent diaphoretic in dropsy." See Dict. de Mat. Méd. Dr. Frost, Prof. Mat. Med. South Carolina Med. Coll., thinks it quite as active as the ipecacuanha, and fully entitled to the consideration of the medical profession, he having used it with benefit in his own practice. "Even should they not be employed, every physician should be instructed in their properties, and, when occasion requires, know the substitute he can apply to in case of need." Op. cit. 82. According to experiment, the contused root will excite vesication and inflammation if applied to the skin. Maj. John Leconte, of New York, informs us that he has been much pleased with its effects as a sudorific. Dose as an emetic, gr. xx; as a cathartic, gr. x; as a diaphoretic, gr. iv. This plant is easily obtained in this State, and can be conveniently prescribed.

Euphorbia ipecacuanha. Carolina hippo. Grows in Abbeville, Edgefield, and Colleton districts; Fl. June.

U. S. Disp. 223; Barton's Med. Bot. 120. An energetic and tolerably certain emetic; but liable sometimes to produce excessive nausea by accumulation; hence, thought by some writers "wholly unfit to supersede the officinal ipecacuanha." This opinion, however, has been questioned by Hewson, Royal, and others. Barton said it was equal, and in some respects superior. Lind. Nat. Syst. Bot. 114; Shec. Flora Carol. 555; Mér. and de L. Dict. de M. Méd. iii. 182; Coxe, Am. Disp. 272; Schoepf, Mat. Med. 74; B. S. Barton, Collec. 26; W. P. Barton, Veg. Mat. Med.; Griffith's Med. Bot. 592; Frost, Elems. 81. It sometimes has its action extended to the bowels, and operates with a considerable degree of activity. Dose

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as an emetic, gr. xv—xx; as a diaphoretic, gr. v. Bigelow notices among its constituents caoutchouc, resin, mucus, and fæcula. Am. Med. Bot. ii. 109. It is evident, from the variety of opinions expressed in relation to this plant, that it should be given with caution.

Euphorbia hypericifolia, L. Spurge, eye-bright. Grows in the upper district, according to Elliott, vic. of Cha'ston. Bach. Collec. in St. John's; found by Dr. Bogkin, in Geo.; Fl. July.

U. S. Disp. 321. Highly recommended by Dr. Zollickoffer, of Baltimore, in dysentery, after due depletion. In diarrhœa, menorrhagia, and leucorrhœa, ℥ss of the dried leaves is infused in a pint of boiling water, of which f℥ss must be taken every hour in dysentery, and the same quantity after every evacuation in diarrhœa, and ʒii morning, noon, and night, in amenorrhœa, fluor albus, &c. See also Mér. and de L. Supplem. to the Dict. de M. Méd., 1845, 282, where Dr. Zollickoffer's success in twelve cases is referred to; also, Am. Journ. of Med. Sci. Nov. 1832; M. and de L. iii. 181. It possesses some narcotic power, also, which contributes to render it peculiarly applicable in these diseases. Journ. Méd. de la Gironde, 161, 1825. Martius says it has the same properties as the E. linearis, the milky juice of which is used in Brazil in syphilitic ulcers. He had often tested its value in ulcers of the cornea. Journ. de Chim. v. 427.

Euphorbia maculata, L. Cultivated soils, vic. of Cha'ston; collec. in St. John's; Fl. July.

Mér. and de L. Dict. de M. Méd. iii. 184; Ainslie, Mat. Med. Ind. ii. 76. Juice employed with great success in cleansing the cornea of the spots and pellicles (les pellicules) following small-pox. Mérat says the ancients recommended these plants in diseases of the eye. Dr. Zollickoffer speaks of this species also as possessing valuable properties. All are endowed with some emetic power.

Euphorbia helioscopea. Grows near the Horseshoe Bridge, Ashepoo, and on Hutchinson's Island, Savannah. See Ell. Sketches. Fl. May.

Dém. Élém. de Botanique, ii. 21. "A valuable purgative." According to Mér. and de L. Dict. de M. Méd. iii. 181, it is useful in syphilis when mercury is contraindicated. Dr. Nonne assures the profession of its utility. See Bull. des Sci. de Fér. ii. 354.

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Euphorbia thymifolia, L. Included by Thomas Walter in his Flora Carolina, among the South Carolina species. Mich. says it grows on the Mississippi. Mér. and de L. Dict. de M. Méd. iii. 188. In India, the powder is administered in the verminous disorders of infants. Ainslie, Mat. Med. Ind. 275.

Celastraceæ.

De Cand. says that an acrid principle has been detected among the species.

Euonymus Americanus. Rare; grows in swamps; collec. in St. John's, Berkley; Fl. May.

Griffith's Med. Bot. 220. Emetic, discutient, and anti-syphilitic. It is also thought to be narcotic. The seeds are said to be nauseous, purgative, and emetic, and are used in some places to destroy vermin in the hair. Leaves are poisonous to cattle.

Euonymus atropurpurens. Possesses properties similar to the above.

Cyrilla racemiflora, Walter. Grows in swamps, and inundated lands; collected in St. John's, where it is found in abundance; vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, i. 295. The outer bark of the oldest shrubs near the root is extremely light and friable, and absorbs moisture. It has been used with advantage as a substitute for agaric and other styptics. We learn that it is much confided in for this purpose by those living in Darlington district, South Carolina. When rubbed on the hand, it produces a sensation similar to that occasioned by the application of an astringent fluid. It has also been applied to ulcers when the indication is to cicatrize them. This plant merits further attention.

Portulacaceæ. (*The Purslane Tribe.*)

Portulacca oleracea, Walter. Purslane. Grows in yards and rich soils; vic. of Cha'ston; collected in St. John's; Fl. Aug.

Linn. Veg. M. Med. 88; Mér. and de L. Dict. de M. Méd. v. 458. It is anti-scorbutic, diuretic, and anthelmintic, and vaunted as an antidote for poisoning from cantharides. According to Linnæus, the herb was used in strangury. It will coagulate milk. The Ame-

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rican Dispensatories do not vouchsafe it the same notice that it has received in various parts of Europe.

SILENACEÆ. (*The Dianthus Tribe.*)

Uniformly insipid.

Silene Virginica, L. Grows on the margin of roads; vic. of Cha'ston; collected in St. John's; Fl. June.

Griffith, Med. Bot. 188; Barton's Collec. i. 39; U. S. Disp. 1296; Mér. and de L. Dict. de M. Méd. vi. 342; De Cand. Essai, 94; Lind. Nat. Syst. Bot. 125. The decoction of the root acts as an anthelmintic.

Saponaria officinalis, Linn. Soapwort. Nat. in upper districts; Fl. Aug.

U. S. Disp. 1293. This plant imparts to water the property of forming a lather, from a principle it contains called saponine, which is allied to the active constituent of sarsaparilla, and as a substitute for which it is frequently used. This is obtained by treating the watery extract with alcohol, and evaporating. It has been used in Germany in visceral and scrofulous affections, cutaneous eruptions, and, by some, is thought superior to sarsaparilla in efficacy. The decoction or the extract may be given. Audry said the inspissated juice would generally cure gonorrhœa in two weeks, without any other remedy. *Op. cit.* Wade's Pl. Rariores, 32; Mér. and de L. Dict. de M. Méd. vii. 220; Flore Med. vi. 311. It is regarded as diuretic, aperient, and sudorific, recommended in engorgement of the abdominal viscera, stomach, intestines, lymphatic glands, and in icterus, cachexy, &c. On account of its sudorific properties, it is advised in syphilis, rheumatism, and gout. Perrilhe gave it, combined with mercury; whilst fresh, administering it in doses of ℥ss of the decoct., or grs. xxiv—xlviii of the extract. Journ. de Chim. Méd. vi. 747, and vii. 710; Ludolff, Diss. de Rad. Sap. Offic. Erfordiæ, 1756; J. F. Cartheusen, Diss. de Sap. Frankfort; Amielhon, "Si le Struthium des anciens est véritablement la saponaire des modernes." Mém. Nat. des Sci. et des Arts, i. 587.

Spergula arvensis, Walt. Linn. Grows in cultivated lands, lower country of S. C.; vic. of Cha'ston; collected in St. John's.

Mér. and de L. Dict. de M. Méd. vi. 497. "Cows which feed on it give milk of a richer quality, and in larger quantities."

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ZANTHOXYLACEÆ.

The species belonging to this order are generally aromatic and pungent.

Zanthoxylum	*Americanum*, T. & Gray. *fraxineum*, Willd. *ramiflorum*, Mich. *Clava-Herculis*, Linn.	Prickly ash; toothache bush.

Barham's Hortus Americanus. The scraped root is applied to ulcers in order to heal them. The plant possesses stimulating powers, and is a "powerful sudorific and diaphoretic;" remarkable, according to Barton, for its extraordinary property of exciting salivation, whether applied immediately to the gums, or taken internally. It is reported to have been used successfully in paralysis of the muscles of the mouth, and in rheumatic affections. Mér. and de L. Dict. de M. Méd. vi. 179; Journ. Gén. de Méd. xl. 226. Dr. Gillespie asserts that it is a good tonic and febrifuge. According to Cam, the Indians employed the decoction as an injection in gonorrhœa; "Voyage to Canada." It has been given in syphilis as a substitute for guaiacum, and also for mezereon. See Anc. Journ. de Méd. ii. 314. A peculiar principle, zanthopierite, is afforded by it. See also Z. fraxineum, with which this plant is frequently confounded, as well as with the Aralia spinosa. U. S. Disp. Its acrimony is imparted to boiling water, and to alcohol. According to Dr. Staples, besides fibrous substances, it contains volatile oil, a greenish fixed oil, resin, gum, colouring matter, and a peculiar crystallizable principle, which he calls zanthoxylin. Journ. Phil. Coll. Pharm. i. 165. It is stimulating, producing, when swallowed, a sense of heat in the stomach, arterial excitement, and a tendency to diaphoresis. It enjoys considerable reputation in chronic rheumatism. Dose of powder from grs. x—ʒss. It has been tried by many with advantage, in this disease. Barton's Collec. i. 25, 52; Thacher's Disp. sub. A. spinosa; Big. Am. Med. Bot. iii. 162.

Z. Carolinianum, Lam. and T. and G. *tricarpum*, Ell. Sk.	This species is supposed to be possessed of similar properties with the above. It is the prickly ash of the Southern States. T. and G.

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GERANIACEÆ. (*The Geranium Tribe.*)

Characterized by an astringent principle, and an aromatic or resinous flavour.

Geranium maculatum, Linn. Cranesbill; crowfoot; alum root. Lind. Nat. Syst. Bot. 137; Coxe, Am. Disp. 304; Eberle, Mat. Med. i. 382; Bell's Pract. Dict. 218; Big. Am. Med. Bot. 189; Thacher's Am. Disp. 224; U. S. Disp. 350; Royle, Mat. Med. 573; Bart. M. Bot. i. 140; Pe. Mat. Med. and Therap. ii. 751; Am. Journ. Pharm. iv. 190; Journ. Phil. Coll. Pharm. i. 171; Ed. and Vav. Mat. Méd. 135; Schœpf, Mat. Med. 107; Barton's Collec. 7; Cutler, Mem. Am. Acad. i. 469; Mér. and de L. Dict. de Mat. Méd. iii. 369; Journ. Pharm. xiii. 287. It is a powerful astringent, adapted to passive hemorrhages, chronic diarrhœa, and cholera infantum. It is injected with advantage in cases of gleet and leucorrhœa, and is used as a wash for old ulcers. Bigelow speaks of it as a very powerful astringent, very similar to kino and catechu, and a useful substitute for the more expensive articles. It forms an excellent local application in sore throats, and ulcerations of the mouth, and is adapted to the treatment of such discharges as continue from debility after the removal of their exciting causes. Colden and Schoepf also speak highly of the root in dysentery; and Dr. B. S. Barton, in cholera infantum, used the decoction in milk. Eberle was successful with it, in his treatment of aphthous affections of the mouth, and of ulcerations of the fauces and tonsils. Griffith, Med. Bot. 209. By Staple's examination, Journ. Phil. Coll. Pharm. i. 171, it contains tannin, gallic acid, mucilage, a small proportion of amadin and red colouring matter; from the bark, a small quantity of resin, and a peculiar crystallizable principle.

Dose of the powdered root in substance is grs. xx—xxx; ʒi—ii of the tincture, or grs. x—xv of the extract. The decoction is made by boiling ℥j of the root in one pint of water, the dose of which is one to two tablespoonfuls. The extract is said to be the best form; alcohol and proof spirit, however, readily dissolve the active principle, and the tincture keeps best.

BALSAMINACEÆ. (*The Balsam Tribe.*)

According to De Cand., the species are diuretic. They are chiefly remarkable for the elastic force with which the valves of the fruit separate at maturity, expelling the seeds. Lind.

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Impatiens { *pallida*, Nutt.; T. and G. / *noli me tangere*, Ell. Sk. } Touch me not; jewel weed. Grows in inundated swamps, vic. of Cha'ston; collected in St. John's; Fl. July.

Bull. Plantes Vén. de France, 166. "The whole plant is very acrid, and is used as a cataplasm." Dém. Élém. de Bot. iii. 58. Six grains of the dried leaves will produce nausea. The U. S. Disp., 1264, speaks of it as a dangerous plant, possessed of acrid properties; when taken internally, acting as an emetic, cathartic, and diuretic.

OXALIDACEÆ.

Leaves generally acid.

Oxalis violacea, L. Wood-sorrel. Grows in rich soils; vic. of Cha'ston; collected in St. John's; Fl. May.

U. S. Disp. 66. It contains the oxalate of potash, which imparts to it its pleasant acid taste.

Oxalis corniculata, L. / " *furcata*, Ell. Sk. } Vic. of Cha'ston; similar in properties to the Ox. violacea.

ROSACEÆ. (*The Rose Tribe.*)

None of the species are unwholesome; they are generally characterized by the possession of an astringent principle. The suborder, amygdaleæ, are better known for yielding Prussic or hydrocyanic acid.

Rubus villosus, Ait. High bush blackberry. Diffused; observed in Fairfield district; collected in St. John's; vic. of Cha'ston; Fl. May.

Eberle, Mat. Med. i. 386; Pe. Mat. Med. ii. 453; Ed. and Vav. Mat. Méd. 184; Royle, Mat. Med. 374; U. S. Disp. 603–4; Ball. and Gar. Mat. Med. 267; Big. Am. Med. Bot. ii. 160; Chap. Therap. and Mat. Med. ii. 474; Thacher's U.S. Disp. 341; Lind. Nat. Syst. 144; Barton's Collec. ii. 157; Griffith, Med. Bot. 270. Bigelow considers it a powerful astringent, and is satisfied of its efficacy, administered both internally and externally, in a variety of cases admitting of relief from this class of remedies. Dr. Chapman also speaks highly of it in the declining stage of dysentery, after the symptoms of active inflammation are removed; he asserts that nothing in his hands had done so much to check the inordinate discharges in cholera infantum, two or three doses sufficing to bind up the bowels.

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The decoction is made of ℥j of the root in a pint of water, of which the dose for a child is two or three teaspoonfuls; for an adult, a wineglassful several times a day; orange peel may be added. No analysis has yet been made. In the old work on "Herbs," by Nicholas Culpepper, "Gentleman, Student in Physic and Astrology," the author observes of one of the genus Rubus: "Either the decoction or powder of the root being taken, is good to break or drive forth gravel, and the stone in the reins and kidneys." "The berries, and the flowers, are a powerful remedy against the poison of the most venomous serpents"—p. 48.

Rubus trivialis, Mich. Low bush dewberry; creeping blackberry; diffused; vic. of Cha'ston; collected in St. John's; Fl. April.

Watson's Pract. Physic, 820; U.S. Disp. 603; Pe. Mat. Med. and Therap. ii. 543; Royle, Mat. Med. 375; Chap. on Dis. of Thorac. and Abdom. Viscera, 279; British and For. Med. Rev. Jan. 31, 1845; Ball. and Gar. Mat. Med. 268. This is, no doubt, possessed of astringent properties similar to the above: a decoction of the root is said to be a safe, sure, and speedy cure for dysentery; a remedy derived from the Oneida Indians.

Rubus occidentalis, Linn. Virginian or wild raspberry. Grows in the upper districts; collected in St. John's.

Mér. and de L. Dict. de M. Méd. vi. 131. Properties identical with the above. It is thought to be a specific in dysentery.

Fragaria vesca. Ex. cult. Strawberry.

Flore Med. iii. 169; Griffith, Med. Bot. 277. Gesner speaks of the good effects of the fruit in calculous disorders, and Linnæus extols its efficacy in gout, having, he says, prevented paroxysms of it in himself by partaking of this fruit very freely. They are also supposed to possess vermifuge properties, and to be useful in phthisis. The leaves are astringent, and are recommended in bowel-complaints; and the roots are much used in Europe as diuretics; frequently given in dysuria, in infusion, made with an ounce to the pint of water. *Op. cit.* Lallemand, in his work on Spermatorrhœa, p. 310, states that strawberries are quite serviceable in relieving irritable conditions of the bladder and urethra.

Geum Virginianum, Linn. } White Avens.
" *Carolinianum*, Walt. }

Griffith, Med. Bot. 279; Raf. Med. Fl. i. 220. This plant is

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possessed of tonic and astringent properties, recommended by Ives and Bigelow in dyspepsia, and debility of the viscera; employed, also, with success in leucorrhœa and chronic hemorrhages. It is not supposed, however, to be possessed of much power; ʒj of the powdered root may be used, or a decoction made by ℥j to one pint of water, of which the dose is ℥j, several times a day. In domestic practice, it is given in the shape of a weak decoction, as tea.

Agrimonia Eupatoria, L. Agrimony; cockle burr. Diffused in cultivated lands; Fl. July.

Parr's Med. Dict. art. A, Sup.; Pe. Mat. Med. and Therap. ii. 76; Le. Mat. Med. i. 1251; Royle, Mat. Med. 602; Hoffman's Obs. Phys. Chim. i; Obs. i; Ell. Bot. Med. Notes, i. 403, note; U. S. Disp. 145; Ed. and Vav. Mat. Med. i. 281; Ball. and Gar. Mat. Med. 431; Bergii, Mat. Med. 287; Mér. and de L. Dict. de M. Méd. i. 63; Woodv. Med. Bot.; Ann. de Chim. lxxxi. 332; Coxe, Am. Disp. 18; Shec. Flora Carol. 96; Dém. Élém. de Bot. i. 442. The root and leaves, before the flowers are produced, are acrid and astringent, and are serviceable in passive hemorrhages, diarrhœa, leucorrhœa, and gonorrhœa, and are highly recommended as a deobstruent in obstructions of the spleen, and in diseases arising from the torpor of the liver, as hydrops, icterus, &c. The roots and leaves have been found efficacious in involuntary discharge of urine (enuresis). Ray's Cat. Plantarum; Am. Herbal, by I. Stearns, 89; Lightfoot's Fl. Scotica. It is styptic; it strengthens the tone of the stomach, and it has been employed in chronic diarrhœa. The plant, digested in whey, affords a very grateful diet drink. See Linnæus, Veg. M. Med. 88. The Indians used it in intermittent fever. Colonel Seaborn, of Pendleton district, S. C., writes us word that he has known the plant, boiled in milk, given successfully in snake bites and injuries arising from the stings of spiders. The dose of the powder is ʒj; of the infusion of ℥vi of root in one quart of boiling water, the dose is ℥j. In popular practice, the leaves are applied as a cataplasm to contusions and fresh wounds. It is used by the steam practitioners. See Howard's Imp. Syst. Bot. Med. 284. The leaves and stalks impart a beautiful and permanent gold colour to animal wool, previously impregnated with a weak solution of bismuth, and the flowers are employed by tanners for curing soft and delicate skins.

Spiræa trifoliata and stipulacea. See Gillenia.

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Spiræa tomentosa, Linn. Hardhack, steeple-bush. Grows in the upper districts, and in Georgia; Fl. July.

U. S. Disp. 682; Raf. Med. Fl. ii. 91. A valuable tonic and astringent; administered in diarrhœa, cholera infantum, and other complaints, where medicines of this class are indicated. Wood says it is peculiarly adapted, by its tonic powers, to cases of debility, as it does not disagree with the stomach; but it should be avoided during the existence of inflammatory action or febrile excitement. It was employed by the Indians, and brought to the notice of the profession by Dr. Cogswell, of Conn. Dr. Ives is of the opinion that the root is the least valuable portion: tannin, gallic acid, and bitter extractive are among its constituents, and its virtues are extracted by water. Mér. and de L. Dict. de M. Méd. vi. 507. According to Mead's Thesis, it is given with success in the second stages of dysentery and diarrhœa, having virtues attributed to it analogous to those of quinine. See, also, Journ. Univ. des Sci. Méd. xxiv. 238, and Thesis in New York Med. Repos. (Fr. Mérat, *op. cit.*). The extract is said to be fully equal to catechu, and might very well take its place. As it does not disagree with the stomach, it is considered a very valuable addition to the materia medica. Griffith, Med. Bot. 280; grs. v—xv of extract may be taken, or ℥ij of the decoction, prepared by the addition of ℥j of the plant to one pint of water. This is taken cold, and repeated several times during the day. Great use might be made of this plant, particularly by practitioners residing in the country. In a communication from Dr. S. B. Mead, of Illinois, he informs us that he has employed it in obstinate diarrhœas in place of opium.

Spiræa opulifolia, Linn. Nine-bark. Grows along streams.

Griffith's Med. Bot. 282. This is not so astringent as the S. tomentosa, though Rafinesque (Med. Flora) says it is possessed of similar properties. It has an unpleasant odour, which renders it objectionable as an internal remedy. It is, however, much employed as an external application, in the form of fomentation, or as a cataplasm to ulcers and tumours. The seeds are extremely bitter, and are said to be tonic.

Gillenia trifoliata, Nutt. } Indian physic. Grows in the upper
Spiræa, Linn. } districts, also in Geo.; Fl. July.

Big. Am. Med. Bot. iii. 10; Bart. M. Bot. 165; U. S. Disp. 353. It is a mild emetic according to some writers, largely employed as a substitute for ipecacuanha. Bigelow thinks it is not a

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certain emetic, but Zollickoffer, Barton, Eberle, and Griffith unite in testifying to its value; the latter entirely disproves Baume's unfavourable report. In small doses, it acts as a gentle tonic, especially in torpid conditions of the stomach. According to Mér. and de L. Dict. de M. Méd. 509 (see Spiræa trifol.), its properties partake also of a stimulating character. Coxe, Am. Disp. 305; Carson's Illust. Med. Bot. pt. 1st, 40, 1847. Shreeves (Ex. in the Am. Journ. Pharm. vii.) found in it starch, gum, resin, wax, fatty matter, red colouring matter, and a peculiar principle, soluble in alcohol and dilute acids, but insoluble in water and ether. According to the statement of Dr. Staples, it contains no emetina. The dose of the powdered root is grs. xxx, persisted in till vomiting takes place; grs. ii—iv act as a tonic, and sometimes as a sudorific. The infusion will occasionally produce hyperemesis and catharsis. Lind. Nat. Syst. 144; Frost's Elems. 80; Inaug. Diss. of Dr. De La Motta, of Charleston, published in Philadelphia; Schœpf, M. Med. 80; Bart. M. Med. 26; Griffith's Med. Bot. 283; Griffith, in Journ. Phil. Coll. Pharm. iv. 177.

Gillenia stipulacea, Nutt. } Grows on the Saluda mountains;
Spiræa of Mich. } Fl. July.

Lind. Nat. Syst. Bot. 144. It is emetic, and probably tonic, and is possessed of properties similar to those of the S. trifol., though it is said to be more certain in its effects, and not to have been deteriorated by cultivation. U. S. Disp. 353; Griffith's Med. Bot. 284.

Crataegus crus galli. Grows in swamps.
Mér. and de L. Dict. de M. Méd. ii. 460.

Pyrus coronaria, Linn. Crab apple; Fl. May.

It is not employed medicinally. The fruit is very acid to the taste, and is often made into preserves.

Pyrus malus. Cultivated. The apple, pear (P. communis), and quince (P. cydonia), grow very well in this State. The pulp surrounding the seeds of the latter is often dissolved in water, and used as a mucilage. See authors.

Pyrus Americana, D. C.
Sorbus Americana, Willd.
" *aucuparia*, Mx.
" *microcarpa*, Ell. Sk.
} Mt. ash. Grows on the highest mountains of South Carolina; Fl. July.

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Dém. Élém. de Bot. 655. The flowers are purgative. The oil from the young branches is caustic, and is employed against ring-worm.

Prunus Virginiana. See Cerasus. Several South Carolina species furnish fruit, which is eatable, and often employed for various domestic purposes.

Cerasus serotina, T. & Gray. } Wild cherry. Diffused in upper
Prunus Virginiana, Ell. Sk. } and lower districts; Fl. May.

U. S. Disp. 576; Journ. Phil. Coll. Pharm. x. 197, and xiv. 27; Eberle, Mat. Med. 300; Bell's Pract. Dict. 389; Pe. Mat. Med. and Therap. ii. 538; Le. Mat. Med. ii. 487; Phil. Trans. 418, and Michaux, N. Am. Sylvia, ii. 205; Ball. and Gar. Mat. Med. 273; Cullen, Mat. Med. 288; Lind. Nat. Syst. Bot. 147; Woodv. Med. Bot.; Griffith, Med. Bot. 288; Carson's Illust. Med. Bot. pt. 1. This is undoubtedly one of the most valuable of our indigenous plants. The bark unites, with a tonic power, the property of calming irritation and diminishing nervous excitability, "adapted to cases where the digestive powers are impaired, and with general and local irritation existing at the same time." It is peculiarly suited to the hectic fever attending scrofula and consumption, owing to the reduction of excitability which it induces, it is supposed, by the hydrocyanic acid contained in it. Eberle states that the cold infusion had the effect of reducing his pulse from 75 to 50 strokes in the minute. In a case of hypertrophy, with increased action of the heart, we tried the infusion of this plant, taken in large quantities, according to Dr. Eberle's plan, but without very satisfactory results. It was persisted in for three weeks; the patient, a gentleman, aged twenty-five, of nervous temperament, drinking several ounces of it three times a day. The force of the circulation was at first diminished; but the abatement was not progressive; the individual was not made any worse by it. Tincture of digitalis had been likewise used with no beneficial effects. Dr. Wood speaks of the employment of the wild cherry in the general debility following inflammatory fever. It is valuable, also, in dyspepsia, attended with neuralgic symptoms. Mér. and de L. Dict. de M. Méd. v. 159; Bull. des Sci. Méd. xi. 303. The bark is indicated, whenever a tonic is necessary, from impairment of the constitution by syphilis, dyspepsia, pulmonary, or lumbar abscess, &c. We are informed, by a correspondent, that he finds equal parts of this bark, rhubarb, and the gum exuding from

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the peach tree (Amygdalus communis), which likewise affords Prussic acid, when combined with brandy and white sugar, an excellent remedy in dysentery and diarrhœa—℥j of each is added to one pint of brandy, with a sufficient quantity of white sugar; a tablespoonful of which is taken every half hour. The sensible, as well as the medicinal properties of this plant, are impaired by boiling; cold water extracts its virtues best. By Procter's analysis, it contains starch, resin, tannin, gallic acid, fatty matter, lignin, salts of lime, potassa, and iron, and a volatile oil associated with hydrocyanic acid. This proved fatal to a cat in less than five minutes. See Journ. Phil. Coll. Pharm. vi. 8; Am. Journ. Pharm. x. 197. The leaves, also, are sedative and antispasmodic; used in coughs, angina pectoris, &c. The dose of the powdered root is grs. xx—ʒj. The infusion is the most convenient form. A syrup is also made; besides several secret preparations.

Cerasus Caroliniana, Mich.
Prunus " L. Ell. Sk. } Wild orange; Fl. March.

This is one of the most ornamental of our indigenous evergreen trees; and is planted around dwelling-houses. The berries, bark, and leaves possess, in a high degree, the taste characterizing the genus. It deserves an analysis.

Amygdalus. The peach produces abundantly in this State. The root, leaves, and kernels are sometimes employed in medicine, and in seasoning drinks, condiments, &c., being indebted for any virtues which they possess to the hydrocyanic acid contained in them. A tea of the leaves is a favourite domestic palliative in hooping-cough, and in most pectoral affections.

LEGUMINOSÆ or FABACEÆ. (*The Bean Tribe.*)

The sub-orders are distinguished by nutritive, purgative, and astringent properties.

Baptisia tinctoria, Ell. Sk. Wild indigo. Grows in rich, shaded lands, vic. of Cha'ston; collected in St. John's; Fl. July.

Barton's Med. Bot. ii. 57; Lind. Nat. Syst. Bot. 153. Its virtues reside in the cortical part of the root. In large doses, it operates violently as an emetic, cathartic, and sub-astringent antiseptic. It is said to have proved useful in scarlatina, typhus fever, and the condition attendant upon mortification and gangrene. Dr. Comstock found it

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useful in the latter state, used both externally and internally. Eclectic Repert. vi.; U. S. Disp. 1231. It was employed by Dr. C. not only in existing, but as a prophylactic in threatened, mortification and gangrene. Dr. Thacher speaks highly of its efficacy as an external application to obstinate and painful ulcers, and Eberle (Diseases of Children, p. 98) used a decoction with advantage in the aggravated cases of ulcerated umbilicus, so frequently met with in infants. It may be employed topically, in the form of a cataplasm. The young shoots may be eaten as asparagus; but, after they assume a green colour, they act as a drastic purgative. Griffith, Med. Bot. 232. The decoction, made with ℥j of the recent root to one pint of boiling water, is given in doses of a tablespoonful every three or four hours. The ointment, prepared by simmering the fresh root in lard, is applied to ulcers and burns.

B. leucophæa, Nutt. } Cat. Grows in dry soils; found in Georgia
bracteata, Muhl. } also; Fl. April.

Sent to us from Abbeville district, by Mr. Reed, by whom we are informed that a decoction of the leaves and branches is considered stimulant and astringent, and was used by Dr. Branch of that district with great satisfaction, in all cases of mercurial salivation.

Melilotus officinalis, Ph. Melilot. Completely nat., says Ell., around Charleston.

Dém. Élém. de Bot. iii. 37. The infusion of the flowers is emollient and anodyne, and is employed in inflammation of the intestines, retention of urine, tympanites, &c. Am. Herbal, 222; U. S. Disp. 1275. It is thought to be possessed of very little efficacy in medicine, but is used as a local application, in the form of decoction or cataplasm, in inflammatory diseases. Lind. Nat. Syst. Bot. 153; Journ. de Pharm. xxi. 152. A principle, called coumarin, exists abundantly in the flowers of the melilotus, and it possesses an odour which is attributed to the presence of benzoic acid. See Vogel's Anal. Nouv. Journ. de Méd. viii. 270; Mér. and de L. Dict. de M. Méd. iv. 293; Flore Med. iv. 229; Aublet, Voyage, ii. 454; Haller, Hist. Stirp. Helv. 362. The flowers are employed in flatulent colic, and in rheumatism, and the decoction for fomentations. Several species of it are used to flavour Chapziger cheese.

Trifolium pratense, L. Red clover. Vic. of Cha'ston.

Dém. Élém. de Bot. ii. 36. All the species contain a mucous,

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nutritive principle. In Ireland, when food is scarce, the powdered flowers are mixed with bread, and are esteemed wholesome and nutritious. Fl. Scotica, of Lightfoot. Some are said to produce vertigo and tympanites in cattle which feed on them.

Trifolium arvense, Linn. Rabbit foot; field clover. "Grows sparingly in the upper districts." Collected in St. John's, Charleston district. Fl. April.

Wade's Pl. Rariores, 56. Dickerson observes that the dried plant is highly aromatic, and retains its odour. It has been used in dysentery. Withering, 636; Fl. Scotica, 406.

Trifolium reflexum. Wild buffalo clover. Upper districts, vic. of Cha'ston; coll. in St. John's.

It affects very sensibly the salivary glands. In horses, this may frequently be noticed.

Trifolium repens, L. White clover. Vic. Cha'ston; collected in St. John's; Fl. May.

Ell. Bot. ii. 201. This also affects the salivary glands, sometimes producing complete salivation. Fl. Scotica, 404. Its leaves are a good rustic hygrometer, as they are always relaxed and flaccid in dry weather, but erect in moist and rainy.

Indigophera Caroliniana. Walt. Grows in dry soils, vic. Charleston; collected in St. John's, Berkley; Fl. May.

Not inferior, says Nuttall, to the cultivated indigo. It does not, however, possess so much colouring matter.

Indigophera tinctoria! Indigo. Once cultivated in S. C. to a large extent; see *Indigophera anil.* Collected in St. John's, Berkley; Fl. June.

Drayton's View of S. C. Mérat and de L. Dict. de M. Méd. iii. 601. According to Laennec, the decoction of the root possesses the property of acting against poison, and is useful in nephritic diseases. In Jamaica, it is employed to destroy vermin. The leaves are alterative, and are given in hepatic disorders. Ainslie, Mat. Med. Ind. i. 180, ii. 33; Journ. de Botanique, v. 11; Ann. de Chim. lxviii. 284; M. and de L. Supplem. 1846, 383; Martius, Syst. Mat. Med. 126; Perrollet Mém. sur la culture des indigophères tinctoriaux, Paris, 1832; L'herminier Resumé des obs. faites sur plusieurs

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espèces indigophères de Guadeloupe; see Journ. de Pharm. xix. 257; A. Saint Hiliare, "Hist. Indigo, from the first account of it till the year 1833" (Ann. des Sci. Nat. vii. 110); Mem. on Indigo in the Comptes Rendus Hebdom. of Acad. Nat. Sci. 19th Dec. 1836, 445; Dumas' Mem. upon Indigo, its Composition, &c., in the Journ. de Chim. Méd. iii. 66, 1837; D. Erdmann Rech. upon Indigo (in French, also), in the 26th vol. Journ. de Pharm. 460, 1840; and the report upon the proposed extraction of Indigo from the Polygonum tinctorum. See Journ. de Pharm. xxxvi. 274. The remains of the indigo plantations, with the vats in which indigo was prepared, are still to be seen in the lower districts of the State, bordering on the Santee River. Since the introduction of cotton and rice, it is cultivated, though not very largely.

Glyceria tomentosa. Grows in dry pine lands; Fl. June.

Mér. and de L. Dict. de M. Méd. 387. In Pondicherry, this is given to horses in place of oats. Mém. du Muséum, vi. 326.

Tephrosia Virginiana, Ph. Turkey pea; Goat's rue. Vic. of Cha'ston; grows in dry soils; Fl. July.

Lindley's Med. Flora, 244; Griffith, Med. Bot. 238. The roots were used by Indians, and are now employed in popular practice, as a vermifuge; a decoction is said to act as powerfully and as efficiently as the pink root (Spigelia). Attention is invited to it.

Robinia Pseudoacaciæ, L. Yellow locust tree; false acacia. Grows in the mountains of South Carolina; vic. of Cha'ston; collected in lower St. John's, Berkley, near Ward's plantation, Mrs. Prioleau's; Fl. May.

Dém. Élém. de Bot. The flowers are aromatic and emollient. An antispasmodic syrup is prepared from them; and Gendrin states that, when given to infants, it produces sleep, vomiting, and sometimes slight convulsive movements; he relates a case where it was swallowed by boys, in whom acro-narcotic effects were induced. Mér. and de L. Dict. de M. Méd. vi. 101; Desfont, Traité des Arbres, ii. 304; Ann. d'Hort. ix. 168; Ann. Clin. de Mont. xxiv. 68. The inner bark is fibrous, and may be spun into cordage; the wood is of a fine, compact grain, and is used for manufacturing purposes. Mém. sur la Robinia, Mém. de la Soc. d'Agricult. 1786; Francois, Letters on the Robinia, Paris, 1803. Griffith, in his Med. Bot. 239, says that it has not received sufficient attention, for "every part is endowed

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with some good quality." On account of its durability, the wood is much used for tree nails in ship building; the leaves, prepared in the same manner as those of the indigo, may be employed as a substitute: they afford an excellent nourishment for cattle, either in the fresh or in the dried state. Willich, Domest. Encyc. i. x. Grossier (Desc. de la Chine) says that they are used by the Chinese to produce the beautiful yellow colour so remarkable in their silks. It is prepared by roasting half a pound of the half expanded flowers in a copper pan over a gentle fire, and stirring them continually; after turning yellow, water is poured over, and it is boiled till it acquires a deep colour. It is then strained, and half an ounce of alum and the same quantity of shell lime are added, when the dye is fit for use. It is possible that this author may have confounded this plant with the R. flava. Mérat says the flowers furnish a palatable dish when fried. The seeds are somewhat acrid, but afford a large quantity of oil on expression. By infusion in water, they become perfectly mild, and contain an excellent farina.

Robinia viscosa, Vent. Clammy locust. Grows among the mountains, and in Georgia; Fl. May.

Mér. and de L. Dict. de M. Méd. vi. 101. The young branches afford an abundant, glassy exudation, secreted by little superficial glands, which is dissolved by ether; Vauquelin considers it a peculiar product. Ann. de Chim. xxvii. 223. Chevalier, however, doubts it. Dict. des Drogues, iii. 15.

Vicia sativa, Linn. Walter. Tare. Grows abundantly around Charleston; Fl. June.

In England, a decoction of the seeds in water is used as a sudorific in small-pox and measles. The seeds are a good food for pigeons. Fl. Scotica, 396; Mér. and de L. Dict. de M. Méd. vi. 892.

V. faba. Garden bean. Cultivated.

Pisum sativum. Pea.

Great use is made of the varieties of the pea on the plantations in this State, as articles of food for men and animals. The species called the cow-pea is most in use; we have been unable to find, and do not believe that there exists, any accurate botanical description of this very valuable plant. It seems, however, from our examination, to be included under the genus Vicia.

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Amphicarpæa monoica. Grows in rich lands; Fl. July.

Ell. Bot. Med. Notes, ii. 322. The subterranean pod is cultivated as a vegetable.

Arachis hypogæa. Ground nut. Brought by the negroes from Africa; Fl. May.

Mér. and de L. Dict. de M. Méd.; Supplem. 53, 1846. The fruit preserves its germinative powers for forty years. Boudilch Excurs. 392. Large quantities are exported from Senegal on account of the oil which is expressed from them, and which is much valued. Ermandel "On the cultivation of the ground nut, and its employment as a substitute for coffee," Journ. de la Littér. Étrang. ix. 169; Du Buc, Mem. on the use of the A. hypog., and an examination of its oil (in French); see Journ. de Pharm. viii. 231; Rivoli, Lettre sur l'Arachis hypogæa, Milan, 1807; Donmen, Notice sur l'Arachis, Montpellier, 1838. According to the analysis of Pagen and Henry, it is very difficult for the oil to become rancid. Journ. de Chim. Méd. i. 435; Ann. de Hist. Nat. iv. 206; Gurnin, Mém. sur l'Arachis, Biblioth. Physice Econ. i. 145; Tessier, Mém. sur l'Arachis, Avignon. The seeds, parched and ground, can, with difficulty, be distinguished from coffee, as we have ourselves experienced. In some portions of this State, it is employed as a substitute. The okra (Hibiscus esculentus) serves the same purpose. The ground nut is cultivated to some extent in South Carolina, and great use is made of it on the plantations as an article of food, and for various domestic purposes: it is exported with profit, though troublesome to prepare. We are not aware of any use being made in this State of the oil, which it affords on expression. The authorities cited above will afford much valuable information.

Cassia Marylandica, L. Wild senna. Grows along the banks of rivers; vic. of Cha'ston; Fl. July.

Frost's Elems. Mat. Med. 135; Griffith's Med. Bot. 261. It is said to be as safe and as certain in its operation as the imported senna, but more apt to gripe; this may be corrected by infusing some aromatic with the leaves. It is prepared in large quantities by the Shakers, and is generally collected after the seeds ripen; ℥j of the leaves is added to one pint of water; of which, the dose is ℥j—℥iij. We have specimens of the leaves of the officinal senna, which is cultivated successfully by Mr. W. Lucas, of this State, for use on his plantation. He says that it does not appear to degenerate.

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Cassia occidentalis, L.
" *Caroliniana*, Wall. } Styptic weed. Common around buildings; collected in St. John's; vic. of Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. ii. 130; Marcgrave, in his Hist. of Brazil, mentions it as a remedy in the poison of venomous animals, and in strangury. In the Supplem. to Mérat, p. 150, 1846, properties are ascribed to it similar to those of the C. hirsuta, which is diuretic, acting on the lymphatic system, and employed in obstructions, debility, dropsy caused by derangement of the digestive organs, and as a vermifuge also; forty grains parched like coffee are used. It is useful as an application, in the form of a decoction of the leaves, in itch, erysipelatous eruptions, irritation, and inflammation of the rectum. The negroes apply the leaves, smeared with grease, as a dressing for sores. Griffith, Med. Bot. 262; Bouditch, Exper. 392; Chernoviz, Form. 222.

Cassia Chamæcrista, L. Golden cassia. Diffused in dry, sandy soils; collected in St. John's; vic. of Cha'ston; Fl. July.

Trans. Am. Phil. Soc.; Shec. Flora Carol. 390; Mér. and de L. Dict. de M. Méd. ii. 129. The leaves are said to be purgative. It grows in abundance in this State, and should be examined. It is employed in portions of the country for the recovery of worn out lands; those that are sandy being particularly benefited by it. See Greenway's account of the domestic uses. *Op. ant. cit.*

Cassia tora, L. Diffused in cultivated soils, vic. of Cha'ston; Fl. Sept.

Supplem. to Mér. and de L. Dict. de M. Méd. 1846, 150; Ainslie's Mat. Med. Ind. ii. 405. Used in India.

Cercis Canadensis, L. Red-bud; Judas-tree; swamps, vic. of Cha'ston; collected in St. John's; Fl. March.

Shec. Flora Carol. 380. "The wood is of great value for mechanical purposes, as it polishes exceedingly well, and is admirably veined with black and green."

Schrankia angustata, T. and G.
" *uncinata*, Ell. Sk. } Grows in pine lands; Fl. July.

The leaves of this plant possess a remarkable degree of sensibility, closing up immediately upon contact with any surface. We have just repeated, upon this plant, and in a measure verified, the experiments with chloroform and sulphuric ether upon the mimosa

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sensitiva, made by Prof. Marcet, of Geneva, in illustration of the relations existing between animal and vegetable sensibility.* After trying a number of substances, including the tinctures of opium, capsicum, and camphor, and the solution of tartar emetic, sulph. morphine, and hyd. potash, without producing any impression, we ascertained that the two anæsthetic agents alone, when placed on the main petiole of the leaves, had, in about five minutes, their influence gradually extended to those above, causing the leaflets to contract seriatim. Though sensibility to impressions was impaired by each successive attempt, yet it was never entirely lost. The result of our observations differed from those of Prof. Marcet, but agreed with De Candolle in his analogous experiments with nitric and sulph. acids, in its not disclosing any impressions transmitted downwards, or at any rate beyond the junction of the branch experimented on with the main limb of the plant. A drop of the oil of aniseed, placed on a leaf stalk, seemed to have the effect of arresting the transit of any influence beyond it; hence, we may be led to suspect that the impression is conveyed by organs of sensation arranged not far from the surface. In the examination, we were assisted by Dr. René Ravenel.

CALYCANTHACEÆ. (*The Carolina Allspice Tribe.*)

Flowers aromatic and fragrant.

Calycanthus Floridus, Linn. Sweet shrub. Specimens from Aiken; we have observed it growing wild, in Fairfield district; Fl. May.

One of the most aromatic, and sweet-scented of our indigenous plants, cultivated on this account in gardens. Dr. Douglass, of Chester district, S. C., sends us a communication from his correspondent, Mr. M'Keown, who says he has frequently used it with satisfaction, as an antispasmodic tonic, in the cure of chronic agues. A strong decoction of the seed or bark of the root is given.

SAXIFRAGACEÆ. (*The Saxifrage Tribe.*)

De Cand. considers the whole order as more or less astringent.

Heuchera Americana, L. Alum-root. Grows in damp soils;

* Read before the Soc. de Phys. et d'Hist. Nat., Oct. 19th, 1849. See, also, Sill. Journ., July, 1849.

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Richland, Dr. Gibbes; collected in St. John's, Charleston district; found also in Georgia.

Coxe's Am. Disp. 112; Lind. Nat. Syst. Bot. 163; U. S. Disp. 390; Barton's Collec.; Mich. Flora Boreal. Americana, i. 171. "A powerful astringent." It was employed by the aborigines in wounds and cancerous ulcers. Bart. M. Bot. ii. 159; Mér. and de L. Dict. de M. Méd. iii. 490. It is also administered as a substitute for colocynth.

ANACARDIACEÆ. (*The Cashew Tribe.*)

Trees abounding in a resinous, sometimes acrid, highly poisonous juice are the ordinary representatives of this order.

Rhus Toxicodendron, T. & Gray. " *radicans* of authors.	Poison oak; diffused; common in pine lands; vic. of Cha'ston; Fl. July.

Trous. et Pid. Mat. Méd. i. 524; Bell's Pract. Dict. 453; Eberle, Mat. Med. ii. 116; Pe. Mat. Med. ii. 603; Ed. and Vav. Mat. Méd. 345; U. S. Disp. 718; Ball. and Gar. Mat. Med. 241; Royle, Mat. Med. 341; Bergii, Mat. Med. i. 248; Mér. and de L. Dict. de M. Méd. vi. 78; Orfila, Toxicologie Gén. i. 45; Ann. de Chim. xxxv. 186; An. Journ. de Méd. lxxx. 136; Eberle, Mat. Med. ii. 117; Ell. Bot. 363; Alibert, Éléms. de Thérap. i. 452; Big. Am. Med. Bot. iii. 20; Du Fresnoi, quoted in Ann. of Med. v. 182 and 483; Med. and Phys. Journ. i. 308, vii. 273, and x. 486; Duncan's Disp. 294; Bull. Plantes Vén. de France, 146.

It produces in those who come into its vicinity, an erysipelatous inflammation. It is stimulant, and narcotic, employed in paralysis and herpes: of the former disease, seventeen cases are reported by one physician to have been successfully treated with it. The juice which exudes on plucking the stem, makes a good indelible ink. It is dissolved by ether. Bigelow thinks it is composed of a resin, and an essential oil. Purging with neutral salts, the use of opium, bloodletting, and cold applications of acetate of lead, are employed in case of poisoning from these plants. The bruised leaves of the Collinsonia Canadensis (which grows in S. C.) are employed for the eruptions caused by the emanations from the poisonous sumachs, and the Verbena urticifolia, also found in this State, is likewise considered an antidote. Horsefield, in his Diss., states that he administered the infusion in consumptive and anasarcous patients. Du Fresnoi reports cases of herpetic eruption cured by preparations of this plant, also four cases of palsy. Dr. Alderson, of Hull, has given it with good

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effect in doses of one-half to one grain, three times a-day, in paralysis. Mér. and de L. Dict. de M. Méd. Supplem. 1846, 627. Dr. Baudelocque employs it with success in the chronic ophthalmia of scrofulous infants, a collyrium being made of the alcoholic tincture, 4 drs. in ℥ii of water is used, afterwards augmenting the dose. Rev. Méd. Nov. 1836; A. Howroarth's Hist. R. Toxicod. in Essai Méd. du Docteur Alderson, Lond. 1793; Fontana, Traité de la vipère, ii. 160; Alibert, M. Med. i. 450. Some have inoculated themselves with it without injury. Biblioth. Méd. xxvi. 395. "On cite un cas mortel par suite d'attouchement des parties sexuelles après avoir manié des rameaux de ce végétal:" Mé. *loc. cit.* See Annal. in Journ. de Chim. In employing it for ringworm, Du Fresnoi increased the dose of the extract till it amounted to eight grains a-day. "Novel effects concerning a dangerous American plant," by Gleditch (in French); see Journ. de Physic, 1782; Du Fresnoi, in Actes de la Soc. de Méd. de Bruxelles, i. 136; Wursur sur le R. Toxicod.; Actes de La Soc. Écon. de Florence, iii. 138; and observations by Wilhmet on the effects of this plant in Journ. de Méd. de Courv. i. 209; Employ. R. Tox., in thesis, at Montpellier; Ann. de Clinique, vi. 343. Heinning's case of paralysis, cured by R. rad., in Bull. des Sc. Méd. de Férus, iv. 262. It is employed in maladies arising from general debility, and defective innervation. A French writer testifies to the efficacy of this plant in homœopathic doses, in all cutaneous diseases. Dr. Alderson prefers the infusion of the recent leaves; Van Mons, the extract of the dried leaves. By analysis, it contains a very combustible "hydrocarbonate," tannin, gallic acid, resin, gummy substance, fecula, &c. Griffith's Med. Bot. 185; and Stephenson and Churchill, iii. 167; Bull. des Sc. Méd. vi. 98; Bull. de la Facult. v. 439.

Rhus glabra, Linn. Smooth sumach. Grows in the upper districts; found near Columbia and Augusta, Ga., in wet soils; Fl. May.

"If the bark of the root is boiled in equal parts of milk and water, forming with flour a cataplasm, it will cure burns without leaving a scar." The excrescences have been preferred, as an astringent, to tannin or gallic acid. Dr. Walter employed, and substituted them for galls; their sourness is supposed to be owing to malic acid, which is contained in the pubescence. According to Dr. Cozzens, also, of New York, they are astringent, and refrigerant, furnishing with water a cooling drink, useful in inflammation and ulceration of the throat.

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Dr. Fahnestock states that an infusion of the inner bark of the root is employed as a gargle, and is considered almost as a specific in the sore throat attending mercurial salivation. An infusion of the leaves, sweetened with honey, is serviceable, applied in the same way, and for cleansing the mouth in putrid fevers. The bark is considered a febrifuge. Lind. Nat. Syst. Bot. 166; U. S. Disp. 598; Am. Journ. Med. Sci. 561; Mér. and de L. Dict. de M. Méd. vi. 77, where its employment as a gargle is alluded to; Rev. Médicale, i. 1830, 307; Griffith, Med. Bot. 106. The bark of this, the R. copal., R. typhinum, and of the European species, acts as a mordant for red colours, and much use is made of it in the tanning of morocco leather. A vinegar may be prepared from the berries of this species.

Rhus vernix, L. Ell. Sk. " *venenata*, D. C.	Poison sumach; swamp sumach; poison elder. Grows in the upper districts and in Georgia; collected in St. John's; vic. of Cha'ston; Fl. June.

Mér. and de L. Dict. de M. Méd. vi. 82; Lindley, Phil. Trans. vi. Abridg. 507; Sherard, do. 508; Kalm's Travels, i. 77; Marshall's Abstract, 130; Cutler, Am. Acad. 427; Big. Am. Med. Bot. i. 86; Bart. Coll. 24; Thacher's Disp. 321; see Big. R. vernix, Nouv. Journ. de Méd. xv. 43; U. S. Disp. 718. This also gives out a poisonous exhalation; some are even affected by the atmosphere around it. It is thought to be identical with one in Japan, which furnishes a fine varnish, much used in that country. Dr. Bigelow ascertained that the juice, which flows in large quantities from our tree, when wounded in the spring, affords a brilliant, glossy, black varnish. Mér. and de L. Dict. de M. Méd. Supplem. 1846, 628. See Thunberg's Voyage, vi. 15, for a notice of the oil extracted from the seeds. Lind. Nat. Syst. 168; Linn. Veg. M. Med. 56. It is styptic and astringent, and the resin is used as an ointment in piles. Bigelow, in his examination of the juice, referred to above, believes that it consists of a resin and an essential oil. He first boiled it till the volatile oil had escaped, the remainder being reduced almost to the state of a resin, was applied warm as a varnish. Dr. Pierson reports an interesting case of poisoning from this plant; and it is said that some individuals have been injuriously affected by the fumes from the wood of this and the rhus radicans, accidentally burnt on the fire. A swarm of bees were poisoned by alighting on one of these trees. New York Medical Repos.

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Rhus copallina, Linn. Walt. Wing-rib mountain sumach. Diffused; vic. of Cha'ston; collected in St. John's; Fl. July.

Ell. Bot. 302; Ed. and Vav. Mat. Méd. 186. A wash is applied to ringworms. The root is used by the Chippeway Indians as an anti-venereal. The excrescences on the leaves are powdered, and made into an ointment, as an application to hemorrhoids. Griffith, Med. Bot. It does not afford copal. The leaves were mixed with tobacco, and used by the Indians for smoking. The berries are quite sour, and afford, with water, a cooling drink.

Rhus pumila, Mich. Ph. Upper districts; Fl. August.

U. S. Disp. 719; Mx. Flora Americana. According to Pursh, it is the most poisonous of the species.

Rhus typhina, Walt. Flora Carol. Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 82; see Analysis, in Journ. de Chim. Méd. iv. 511. Lassaigne says that this contains malic acid. The incised bark yields resin. It is employed in preparing morocco leather. See R. vernix, &c.

CORYLACEÆ. (*The Nut Tribe.*)

Properties well known. The seeds oily, and generally eatable; the bark astringent, and often containing colouring matter.

Ostrya Virginica, Willd. Ell. Sk. " *Carpinus*, Mich.	Ironwood; hornbeam. Richland, Prof. Gibbes.

Ell. Bot. Med. Notes, ii. 619; Shec. Flora Carol. 355. Its leaves afford a grateful food to cattle. The wood is tough and white, and burns like a candle. It is employed by turners, and wrought into mill-cogs, wheels, &c. A permanent yellow colour is imparted to yarn by the inner bark.

Corylus rostrata, Ait. Grows on the mountains; Fl. March.

Griffith, Med. Bot. 585; Duhamel's Mem. Am. Journ. Pharm. Dr. Henlener, of Bethlehem, has employed the short rigid hairs of the involucre as a substitute for those of mucuna, and has found them equally anthelmintic.

Fagus Sylvatica. " *V. Americana*, L.	White beech. Rich shaded swamps. Richland, Prof. Gibbes; collected in St. John's; Fl. March.

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Shec. Flora Carol. 559; Griffith, Med. Bot. 585; Fl. Scotica, ii. 583; Linn. Veg. Mat. Med. 175. The bark is astringent, and has been used, according to Dr. Farnham, in intermittent fever; but it is not possessed of any decided powers. The fruit produces vertigo and headache in the human species. It is observed, in the Fl. Scotica, that "the fat of hogs, which feed on them, is soft, and will boil away." The seeds yield an oil little inferior to olive oil, and fit, also, for burning. The pulp remaining after expression may be converted into flour, similar in taste and colour to wheat, but sweeter. A narcotic principle, called fagine, has been found in the husks. The young leaves are sometimes used by the common people as a pot-herb. The wood is valuable to cabinet-makers and turners, for manufacturing purposes, being capable of receiving a high polish. Liebig states that the ashes of the beech contain a larger proportion of phosphate of lime than those of any other tree. See his Agricultural Chemistry. It is observed, in this State, that the lands on which it grows are not usually suited for cotton; and we may, perhaps, attribute it to their depriving the soil of this, so necessary a constituent in the maturation of that plant. In the lower country of South Carolina, the beech is one of the most magnificent of our forest trees.

Castanea pumila, W. Chinquapin. Diffused in upper and lower country; sometimes attaining a height of 30 feet; vic. of Cha'ston; St. John's; Fl. July.

U. S. Disp. 189. The bark has been used in intermittent fever, but is probably possessed of very little value. The fruit is eatable.

Quercus tinctoria. Bartram. Black oak; quercitron oak. Upper districts; rare in lower; collected in Cha'ston dist.; St. John's; Fl. April.

Pe. Mat. Med. and Therap. ii. 194; Am. Med. Record, iii. 363; Barton's Essay to Form. Mat. Med.; Alibert, Nouv. Éléms. de Thérap. i. 93; Mér. and de L. Dict. de M. Méd. v. 590; Edinb. Med. Journ. 72; U. S. Disp. 581; Mich. N. Am. Sylvia, i. 91; Journ. de Pharm. et de Chim. v. 251; Royle, Mat. Med. 559; Ball. and Gar. Mat. Med. 396; Griffith's Med. Bot. 585; Am. Herbal, 153. The bark, a powerful and valuable astringent, is also possessed of purgative properties, in which respect it has an advantage not met with in the Q. falcata. They have both been efficacious in leucorrhœa, amenorrhœa, chronic hysteria, diarrhœa, rheumatism, pulmonary consump-

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tion, tabes mesenterica, cynanche tonsillaris, and asthma. Oak balls produced by these are also powerful astringents, and are employed in many cases requiring such remedies, as in diarrhœa, dysentery, and hemorrhage; also in mild cases of intermittent fever. The dose of the powder is 40 grains. The powder of this, or of the bark, mixed with hog's lard, is a very simple and effectual remedy in painful hemorrhoids, and a decoction is serviceable as a fomentation for prolapsus uteri and ani, and for defluctions from those parts. According to Dr. Cullen, it is applicable in relaxations, or impaired conditions of the mucous membranes, on account of its tonic constringing effect; as, a gargle in inflammation of the fauces, prolapsus uvulæ, &c. Mr. Lizars has used it with "wonderful success" in the cure of reducible hernia. It is applied topically in mortification, and to ill-conditioned ulcers. Marasmic and scrofulous children are bathed with great advantage in a bath made of the bark. Although this species acts slightly on the bowels, it contains more tannin and gallic acid than the Q. alba and Q. falcata; hence, it is better suited to cases requiring an external astringent. Quercitron is obtained from this and the Q. falcata (which see) indiscriminately, and is sent to Europe in large quantities to be employed in dying wool and silk of a yellow colour.

Quercus falcata. Mx. Spanish oak. According to Elliot, common on the sea coast; collected but sparingly in St. John's; Richland; grows also in Georgia; vic. Cha'ston; Bachman.

Chap. Therap. and Mat. Med. ii. 493; U. S. Disp. 581; Bart. Essay on the M. Med.; Alibert, Nouv. Éléms. de Thérap. 193; Phil. Med. Mus. 11; Mér. and de L. Dict. de M. Méd. v. 586; Lind. Nat. Syst. Bot. 170. This is possessed of the astringent qualities characterizing the genus; it has not, however, the purgative property found in the Q. tinctoria. It is employed as an astringent wash for gangrene. A decoction is administered with great success in dysentery, pulmonary and uterine hemorrhage, and some have said, in intermittent fever. See Q. tinctoria and alba. In domestic practice, where an easily obtained and efficient astringent is required, this, and the more common species, the Q. rubra, are of no little value. They are used to a large extent on the plantations in South Carolina.

Quercus alba, L. White oak. Diffused; St. John's; vic. of Cha'ston; Fl. May.

U. S. Disp. 582; Royle, Mat. Med. 659; Griffith, Med. Bot. 586.

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The bark is officinal, and is generally used in similar cases with the above, with the exceptions before mentioned. By some it is preferred to the others on account of its not acting on the bowels. The decoction is sometimes used as an injection in leucorrhœa and gonorrhœa. The bark contains tannin, gallic acid, and bitter extractive, the former predominating. This is one of the most valuable of our forest trees, and it is largely employed for manufacturing purposes, and in the domestic economy of the plantations in this State. The wood is hard and durable.

Quercus rubra. Red oak. Diffused; grows in great abundance; St. John's, Cha'ston; Fl. April.

U. S. Disp.; Griffith, Med. Bot. 587. Employed, like the others, as an astringent. It is easily obtained, and conveniently prescribed. We have ourselves found the bark of the tree of some service among the negroes, in several cases, where a tonic astringent injection was required, using it in one of prolapus uteri, where the organ became chafed and painful from exposure. The decoction of the bark, with sulphate of copper, is employed on the plantations to dye woollens of a green colour, and for tanning leather. The wood is not so durable as that of the Q. alba, but it is much used for domestic purposes.

Quercus montana, Willd. Rocky soils in the Alleghany mountains of South Carolina. Used as a substitute for the above.

Quercus virens, Aiton. Live-oak. Grows abundantly on the sea coast, for the space of forty miles from the ocean; Fl. June.

U. S. Disp. 581; Eberle, Mat. Med. i. 376. This tree grows to a large size in South Carolina. Its great value for manufacturing purposes, ship-building, &c., is well known. It is often exported for these purposes, to great advantage. Its branches extend out to some distance, and it affords one of our most venerable, magnificent, and ornamental shade trees, suited for avenues.

Quercus prinos, L. Vic. Cha'ston. This may be used medicinally as a substitute for the Q. alba.

BETULACEÆ. (*The Birch Tribe.*)

Bark astringent; sometimes employed as a febrifuge.

Betula lenta, L. Sweet birch; cherry birch; mountain mahogany. Mountain ridges of South Carolina.

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U. S. Disp. 1233. The bark and leaves possess a very aromatic flavour. An infusion of them is useful as an agreeable, gently stimulant, and diaphoretic drink. The oil, obtained by distillation from the bark, has been shown by Procter to be similar to that of the *Gaultheria procumbens*. (See that plant.) It also affords a saccharine liquor. Am. Journ. Pharm. xv. 243; Ell. Bot. ii. 617. The wood, possessing a fine grain, which is susceptible of a beautiful polish, is much used by cabinet makers.

Betula nigra, Linn. Red birch. Vic. of Cha'ston; collected on the Santee River, St. John's, Berkley; Fl. March.

Ind. Bot. Dr. Green states that a strong decoction of the bark cured cases of putrid sore throat. It is useful also in pleurisy. Lindley says that the black birch of North America is one of the hardest and most valuable we possess.

Alnus serrulata, Aiton. Alder. Grows along rivulets, Charleston district; Richland, Prof. Gibbes; Fl. April.

U. S. Disp. 1224. The bark is astringent. N. Y. Journ. Med. v. 7, 8. It had for a long time been neglected; but, in the article referred to, the decoction is spoken highly of as an alterative and astringent in scrofula, and cutaneous diseases, and it is said to have been very successful in hæmaturia; in these affections producing beneficial results where all other means had failed. Shec., in his Flora Carol., spoke of the alder tags, as being of great service, on account of their alterative powers; a decoction of the leaves has also been used to suppress hemorrhage, and they have been found effectual in relieving dyspepsia and bowel-complaints. The leaves are applied externally to wounds and ulcers. The inner bark of the root is emetic, and it has been given in intermittents. It is used by tanners and dyers; the shoots cut in March will impart a cinnamon colour to cloths. The wood does not absorb water easily, and is employed in making posts.

URTICACEÆ. (*The Nettle Tribe.*)

Urtica urens, L. Dwarf nettle. Grows around Beaufort; collected in Fairfield district. Ell. says at St. Mary's, Georgia; vic. of Cha'ston. Bach. Fl. Feb.

Murray's App. Med. iv. 592; Bull. Plantes Vén. de France, 170. It causes an excessive discharge of urine, and Sérapion said that thirty grains of it would purge. In the Supplement to the Dict. de Mat. Méd. by Mér. and de L. 1846, p. 719, we have an account of

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the remarkable hemostatic virtues of this and the *U. dioica*, also found in South Carolina. It had originally obtained some favour in this respect, and was used by Sydenham; but had for a long time fallen into disrepute. It has been reserved for M. Guinestet to restore the public confidence in it; and it is now spoken favourably of by Chomel, Lange, and Desbois. Guinestet advises it in hemorrhage, and reports five cases of uterine hemorrhage in which bleeding was instantly arrested; two to four ounces of the juice were given, taken internally, and in the form of injection. It has also been successfully employed in hematemesis and epistaxis, and cases of two months' duration were cured. The objections of others who were not so successful have been satisfactorily answered, its pretended therapeutic action being denied by Drs. Kasciakewies and Fiard, who report a case of poisoning from the internal use of two ounces of the concentrated decoction. The supporters have produced well-sustained arguments destroying the force of these statements; and Mérat himself speaks favourably of it in an official report made to the Academy, and published in the Bull. de Thérap.; he furnishes a case of nasal hemorrhage, occurring in a girl who was giving birth to a child, and who was at the same time flooding, both of which he succeeded in arresting with the juice of this plant, when everything else had failed. Many others have used it with very favourable results in this and in leucorrhœa. "Spérons," adds the author of the Dict. de M. Méd., "que l'expérience confirmera ces heureux résultats." See Amusat's, Chevallier's, and Mérat's Rapport "sur l'emploi du suc d'ortie comme antihémorrhagique," made in 1846, in the Bull. de l'Acad. Royale de Méd. ix. 1015. Dr. Menicucci, of Rome, introduces into the vagina a sponge soaked in the juice; and it may be, at the same time, administered internally. See Abeilhé Médicale, Mai, 1846. M. Guinestet attributes its hemostatic virtues to a constituent which coagulates milk in the same way that poisons do. See a letter of Mérat, relating a case of uterine hemorrhage existing for two months, which was cured by the juice of the *U. dioica* (in French). Idem. x. 364, 1845; Mér. and de L. vi. 875; Journ. de Méd. vi. 492. By analysis, it contains a carbonate, ammonia, chlorophyl, mucus, black colouring matter, gallic acid, tannin and nitrate of potash, less abundant than in the U. dioica (which see). Induced by these notices to test it ourselves, we succeeded in obtaining a quantity of the U. urens from Fairfield district, S. C. Assisted by Dr. R. A. Kinloch, of Charleston, we proceeded to expose and divide the right common carotid arteries of two sheep; upon the bleeding

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orifices of which were applied lint covered with a sponge soaked in the cold infusion and the decoction respectively. The results were as follows: The first died from improper manipulation. In the second, the bleeding ceased entirely; the animal was killed, however, a short time afterwards. The juice of the plant seemed to have some effect in coagulating fresh blood poured into the hand. Upon giving the cold infusion, made with ℥ij of the plant to a pint of water, in doses of a wineglassful four times a-day, to a patient affected with chronic hematuria, who had used tannin, gallic acid, and the infusion of buchu ineffectually, she confessed having derived decided relief from it, but complained of its having brought out an eruption over the body. The experiments in both cases are obviously too meagre as yet to enable us to pronounce positively as to the amount of power the plant possesses. Celsus employed the Urtica in paralysis. De Re Medica, l. iii. 27; Bull. des Sci. Méd. ix. 77. Flagellation with the branches, which, it is well known, contain stings which produce great irritation, followed by inflammation, has been recommended for bringing out cutaneous and febrile eruptions, as in scarlatina, in apoplexy, in insensibility of organs, in chronic rheumatism, and, in fact, wherever a powerful external stimulating revulsive is required. For this purpose, it has even been employed in the algid period of incurable cholera morbus. Dr. Marchand, Séance de l'Acad. Roy. de Méd. ii. July, 1832; J. Stevoght, Diss. de Urtica, 1707; J. Francus, Tractatus Singularis de Urtica Urente, &c. Dilleng. 1726. Both this and the U. dioica are found in this State, and we would invite further and particular examination into properties which are of so valuable a description. We observe no notice of these experiments in the American works. The minute structure of the sting is said to be very curious.

Urtica dioica, L. Common nettle. Grows along roads and fences; vic. of Cha'ston; Fl. Aug.

Dém. Élém. de Bot. iii. 338. It is applied extensively as a stimulating and antiseptic astringent and detersive, the herb and seed being used; the decoction is also alluded to in this work as being used in hemorrhage, bloody urine, &c. Urtication with this also was employed in rheumatism, paralysis, &c. (See *U. urens*.) The root is advised in jaundice and nephritic diseases. Fl. Scotica, 57. A rennet was made with a strong decoction. One quart of salt was added to three pints of the decoction, and boiled for use; a spoonful of which was sufficient to coagulate a large quantity of milk. Stearns

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in the Am. Herbal, 136, refers to its use in jaundice, nephritic disorders, and in hemorrhage. "The juice snuffed up the nose stops bleeding, and a leaf put on the tongue, and pressed against the roof of the mouth, will answer the same purpose." Thornton's Fam. Herbal. Linnæus, in his Veg. Mat. Med. 511, alludes to its employment in hemorrhage; it was considered lithontriptic and emmenagogue, and adapted to those in whom the hemorrhagic diathesis prevailed; all of which opinions we quote, as coming from old authors. "Steel dipped in the juice becomes more flexible." The seeds produce an oil, which, taken in moderate quantities, excites the system, especially "*les plaisirs de l'amour.*" Twenty or thirty grains of these induce vomiting, and a few of them, taken daily, are said to reduce excessive corpulency. Mér. and de L. Dict. de M. Méd. vi. 613. By Salladin's analysis, in Journ. de Chim. Méd. vi. 492, the plant contains nitrate of lime, hydrochlorate of soda, phosph. potash, acetate of lime, ligneous matter, with silicate and oxalate of iron. Pallas, Voyage, i. 700; Gmélin, Flora Siberica, ii.; Mathiole, Comm. 560. It is said that animals which feed on the plant become both fatter and stronger. Mém. de Hærlem, xxvi. The stalks have a fibre like hemp, and have been employed for making cordage; the root boiled in alum will dye a yellow colour. See Hooke's Microscop. Diss. xxii. 12, and Guettard, Mém. de l'Acad. des Sci. de Paris, 1751, 350, for a description of the structure of the sting, and the Petersburg Journ. 1778, 370, for a notice of the value of the stalks in making ropes and paper. The U. S. Disp., 1303, barely notices the plant. Late experiments may have escaped the attention of its indefatigable authors.

Urtica pumila, L. Grows in wet soils, vic. of Cha'ston; Richland, Prof. Gibbes; Fl. Sept.

Griffith, Med. Bot. 572. This is quite smooth; is said to be an excellent application to inflamed parts, and to relieve the eruption caused by the Rhus. Griffith invites farther investigation.

Cannabis sativa. Hemp. Ex. Nat. Cultivated in the upper districts.

The value of this plant for manufacturing purposes is well known. Water in which it is soaked becomes violently poisonous. The seeds afford an oil, which, boiled in milk, is recommended against coughs, and is also said to be useful in incontinence of urine. In India, an intoxicating liquor is made from the leaves, resembling opium in its effects.

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Humulus lupulus, L. Hop. Grows in the mountains of S. C. Dr. McBride; Ed. and Vav. Mat. Méd. 185; Chap. Therap. and Mat. Med. i. 348, and ii. 455; Eb. M. Med. ii. 55; U. S. Disp. 374; Big. Am. Med. Bot. ii. 163; Freake, Med. Phys. Journ. xiii. 432. Thompson's Lond. Disp. 200; Bigsby, Lond. Med. Repos. v. 97; Bryorly's Inaug. Diss. Phil. An. 1803; Ives in Silliman's Journ. ii. 302; Thornton's Fam. Herbal, 820. This plant is certainly possessed of some narcotic power. According to Dr. Latham, an infusion of it is a good substitute for laudanum. It is employed in doses of ʒiss in allaying the distressing symptoms of phthisis. It augments the secretions, removes pain and irritability, and induces sleep. Dr. Maton, Fell. Roy. Soc. Coll. Phys., says that large doses produce headache. It is thought to be a specific in removing asthmatic pains, without increasing the secretions. Mér. and de L. Dict. de M. Méd. iii. 544; Pliny, lib. xxi. c. 15; Flore Med. iv. 196. It is given with good effect as a stomachic, in inappetency and weakness of the digestive organs. Mat. Med. Indica. 120; Bull. des Sci. Méd. xvi. 145; Journ. des Sci. Méd. xli. 376; Edinb. Journ. iv. 23; Diss. Medici de Humuli medici viribus medicis, Edinb. 1803; Bromelius, "Lupulogia," Stockholm, 1687; Obs. of Freake on the Hop, Lond. Lupulin, obtained from it, is said to diminish the force of the pulse. See Journ. de Chim. Méd. ii. 527; Journ. de Pharm. viii. 228 and 330. In the Supplem. to M. and de L. Dict. de M. Méd. 1846, a case is reported of a girl being poisoned by the hop. Rev. Scientifique, Mars, 1845; Journ. de Pharm. Mars, 1842. Much use is made of the hop poultice in allaying pain, applied over the part. Its domestic value in preparing the liquor, known as yeast, is obvious. The medicinal properties of the hop are said to depend upon the lupulin, a peculiar resinous secretion contained in the glands, which is obtained by threshing and sifting the strobiles. By analysis it consists of volatile oil, bitter principle, or lupulin, resin, &c.; when administered internally, this has all the good effects of the hop; given in pill, in doses of grs. vi—x, or in tinct. in those of ʒss—i; and it may also be added to poultices, ointments, &c. Ives' Experiments; Griffith, Med. Bot. 574.

Morus alba, L. Mulberry. Nat. diffused; vic. of Cha'ston; Fl. March.

Bell's Pract. Dict. 319; U. S. Disp. 463; Dém. Élém. de Bot. The root is bitter, and very astringent, and is useful in relaxed states of the bowels, diarrhœa, &c. Lind. Nat. Syst. Bot. 186. It contains my-

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roxylic acid with lime. Turner, 640. See analysis in the Journ. de Chim. Méd. x. 676. The bark is a purgative vermifuge, but is more important on account of "the leaves being the favourite food of the silk worm." Mér. and de L. Dict. de M. Méd. Supplem. 1846, 496; Griffith, Med. Bot. 579.

Morus rubra, L. Mulberry. Grows along rivers and swamps, vic. Cha'ston; Richland, Prof. Gibbes. Fl. March.

U. S. Disp. 463. The fruit is laxative and cooling, and a grateful drink is made from it, adapted to febrile cases. Ell., in his Sk. of the Bot. of S. C., says the wood is preferred, in the building of boats, to that of any other tree except the red cedar (Juniperus Virginiana).

Ficus carica, Ex. cult. Fig. Flourishes in S. C.

Shec. Flora Carol. The fruit is well known; the juice has been substituted for sympathetic ink, as the characters written with it are not visible till exposed to the sun. The decoction of the green branches and leaves imparts a deep gold colour, of a brown shade, to cloth prepared with a solution of bismuth. We have heard it stated as a curious fact, that there is but one male fig in America, which grows in Louisiana!

ULMACEÆ. (*The Elm Tribe.*)

Ulmus fulva. Slippery elm. We have observed it in Fairfield district. It is sometimes found lower down.

Am. Herbal, 139; Frost's Elems. Mat. Med. and Therap. 228; U. S. Disp. 727; Dr. McDowell's Med. Exam. 244; West. Journ. Med. and Phys. Sc.; Michaux, Fl. Americana, i. 172; and N. Am. Sylvia, iii. 89; Griffith, Med. Bot. 563. A decoction of the bark was much used by the Indians in the cure of leprosy. It is an excellent demulcent employed as an emollient application, and internally, is especially recommended in suppression of urine, inflammation of the bladder, dysentery, and diarrhœa. A decoction made of this, combined with the root of the sassafras, and guaiac, is esteemed as a valuable drink to increase cutaneous transpiration, and to improve the tone of the digestive organs. Griffith considers it a good substitute for acacia, and he has witnessed its beneficial effects, externally applied, in obstinate cases of herpetic and syphilitic eruptions; he is inclined to ascribe higher curative powers to it than are generally admitted. It forms a good vehicle for enema, where a muci-

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laginous fluid is required. The bark, cut in the form of a bougie, has been used in dilating sinuses and contractions of the urethra. The substance exuding from the bark is called ulmin.

Ulmus Americana, Mx. Vic. of Cha'ston.

Mér. and de L. Dict. de M. Méd. vi. 799; Coxe, Am. Disp. 611; Phil. Med. Mus. 11. The U. fulva probably referred to.

Celtis occidentalis, L. Sugar berry. A noble tree, growing along the margin of streams, and in damp lands; collected in St. John's; vic. of Cha'ston. Bach. Fl. June.

Mér. and de L. Dict. de M. Méd. ii. 170; Fl. Med. i. 90; Griffith, Med. Bot. 563. It yields a gum resembling that of the cherry tree; the root and leaves are somewhat aromatic, and were used by the Indians in syphilis. The berries have a sweet and pleasant taste.

MYRICACEÆ. (*The Gale Tribe.*)

Aromatic, and sometimes astringent.

Myrica cerifera, L. Wax myrtle. Grows abundantly in the swamps of the lower country; Fl. May.

Ell. Bot. Med. Notes, ii. 278; Matson's Veg. Pract. 198; U. S. Disp. 200; Pe. Mat. Med. and Therap. 786; Big. Am. Med. Bot. iii. 32; Am. Journ. Med. Sci. ii. 313; Bergii, Mat. Med. ii. 541; Nicholson's Journ. iv. 187; Kalm's Travels, i. 129; Dana in Silliman's Journ. 1; Thacher's U. S. Disp. 288; Mér. and de L. Dict. de M. Méd. iv. 531; De Cand. Essai, 772; Lind. Nat. Syst. Bot. 180. The root is a powerful astringent, and a decoction is employed in diarrhœa, dysentery, hemorrhage from the uterus, in dropsies which succeed fevers, and as a gargle in sore throat. It is also given to some extent by the vegetable practitioners. Griffith states (Med. Bot. 583) that the bark of the root is also stimulant and acrid, and in doses of a drachm, causes a sensation of heat in the stomach, followed by vomiting and sometimes diuresis. The powder is an active errhine, and the leaves have some celebrity in domestic practice, as being antispasmodic, antiscorbutic, and astringent. Dr. Dana found the powdered root powerfully sternutatory. Bigelow says that the bark and leaves contain gallic acid, tannin, resin, and a small quantity of mucilage. The berries afford a large amount of wax, which rises to the surface when they are boiled, not remarkable for adhesiveness or unctuosity. Dr. Bostock considers it a fixed vegetable oil, rendered concrete by oxygen, and by the experiments of Dr. Dana, it

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constitutes one-third of the whole berry. It is employed for candles, emitting a fragrant odour, and it also forms the basis of a fine soap. It appears to possess some astringent and slightly narcotic properties, and has been administered by Dr. Fahnestock in an epidemic of typhoid dysentery. He gave it in doses of ʒi—ii, and he is of opinion that its active principle resides in the green colouring matter. Am. Journ. Med. Sci. ii. 318. Rafinesque states that a tincture of the berries, with Heracleum, is beneficial in flatulent colic. De Cand., Essay upon the Louisiana Myrtle (in French); see Ann. de Chim. xliv. 141, and xlvi. 77; C. L. Cadet, Mem. on the Myrtle of Louisiana and Pennsylvania, Paris; Thiebault de Bernaud, Mém. sur le cirier, ou arbre à cire, Paris, 1810.

Myrica Carolinensis. Grows in dry soils; Richland, Prof. Gibbes; collected in St. John's.

Griffith's Med. Bot. 583. Supposed to possess similar properties with the above. It can scarcely be distinguished from the others.

JUGLANDACEÆ. (*The Walnut Tribe.*)

Juglans cinerea, L. Butter-nut; oil nut; Grows in the mountains of South Carolina; Fl. April.

U. S. Disp. 710; Archives Gén. 3e série, x. 399, and xi. 40; Frost's Elems. Mat. Med. 131. "The inner bark of the root affords one of the most mild and efficient laxatives we possess." The extract was a favourite remedy in General Marion's camp during the revolutionary war. It is very efficacious in habitual constipation, in doses of x—xxx grs.; the first acting as a laxative, the maximum purging. Big. Am. Med. Bot. ii. 115; Mx. N. Am. Sylvia, 160; where it is spoken of as a mild cathartic, operating without pain or irritation, and resembling rhubarb in its property of evacuating, without debilitating the alimentary canal. Dr. Rush employed it during the war. Wood says it is highly esteemed in dysentery; Lind. Nat. Syst. 181. The rind of the fruit and the skin of the kernel are extremely astringent, anthelmintic, and cathartic; the oil extracted from the fruit is of a very drying nature. Mér. and de L. Dict. de M. Méd. iii. 687 (J. cathartica). He remarks that the inner bark of the root is acrid and caustic, and purges, but occasions neither heat nor irritation, adapted to bilious constitutions and to dysentery; often combined with calomel. It is given to animals in a disease called "yellow water;" Bull. des Sci. Méd. Fér. xii. 338. The powdered leaves are rubefacient, and act as a substitute for cantharides; Coxe, Am.

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Disp. 365. The bark of the branches affords a large quantity of soluble matter, chiefly of the extractive kind, water seeming to be a solvent. Wetherill found in it fixed oil, resin, saccharine matter, lime, potass, a peculiar principle, and tannin. Dr. B. S. Barton, in his Collections 23, 32, thinks it is possessed of some anodyne property. Dr. Gray ascertained that four trees, 8–10 inches in diameter, produced in one day nine quarts of sap, from which was made one pound and a quarter of sugar, equal, if not superior, to that produced from the maple. This plant is always given in the form of extract or decoction. Griffith's Med. Bot. 589; Thacher's Disp. 245; Rush's Med. Obs. i. 112; Pe. Mat. Med. and Therap. ii. 767; Lind. Med. Fl. 387.

Juglans nigra, L. Black walnut. Diffused in lower and upper country of South Carolina; Fl. June.

Mér. and de L. Dict. de M. Méd. iii. 687; Griffith, Med. Bot. vi. 89. The bark is styptic and acrid; the rind of the unripe fruit is said to remove ringworms and tetter; and the decoction is given with success as a vermifuge. "A kind of bread is obtained from the fruit." In a communication received from J. Douglass, M. D., of Chester district, South Carolina, his correspondent, Mr. M'Keown, informs us that a bit of lint, dipped in the oil of the walnut kernel, and applied to an aching tooth, is an effectual palliative: he has employed it for thirty years with great satisfaction. The fruit is edible, and pleasant to the taste. The wood is very compact and durable, with a black, fine grain, susceptible of a high polish, and forming a valuable substitute for mahogany, from which, when seasoned and varnished, it can scarcely be distinguished. It is much used in South Carolina in the manufacture of tables, stair-railings, and the inner work of houses.

Carya amara and porcina, Ell. Sk. The bark is astringent. A dye, for woollens used on the plantations, is made from that of most of the species. The fruit of many of the hickory trees is pleasant to the taste.

Carya olivæformis. Pecan; Mississippi nut.

We have observed it growing wild in Ward's swamp, St. John's, Berkley, South Carolina. No doubt, the fruit was disseminated from neighbouring plantations, where it is cultivated. The fruit of the plants of this order are favourite articles for table use in this State.

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SAURURACEÆ.

Saururus cernuus, L. Grows in inundated soils; Richland; vic. of Cha'ston; and collected in St. John's, where the root is used, in the form of a poultice, in discussing tumours, and as an application in abscess of the breasts occurring after labour. It is thought by many to possess great value in this respect. In a note to Ell. Bot. 505, it is also said that the fresh root is applied with advantage as an emollient and discutient to inflamed surfaces.

SALICACEÆ. (*The Willow Tribe.*)

Bark generally astringent, tonic, and stomachic.

Salix nigra, L. Willow. Grows along streams; Richland, Gibbes; vic. of Cha'ston; collected in St. John's; Fl. May.

Bell's Pract. Dict. 403; U. S. Disp. 622. See work of the younger Michaux, Ball. and Gar. Mat. Med. 337; Mér. and de L. Dict. de M. Méd. vi. 185; Griffith, Med. Bot. 583; Schœpf, Mat. Med. 43; Ell. Bot. Med. Notes, ii. 671. The willow is supposed to furnish us with one of the best substitutes for Peruvian bark, the S. alba, which may be included among the many varieties found in this State, and which are not yet accurately distinguished; it seems to be held in high estimation. But this species, also, is considered valuable: the bark possessing some power as a purgative, anti-intermittent, and vermifuge. It also furnishes the principle called salicin, which, from the results of late experiments, is found to be much less valuable than quinia, but is a good bitter tonic. See Journ. Phil. Coll. Pharm. for the mode of preparation. The large stems of this tree are light and durable, and are used for the timbers of boats.

Salix Babilonica. Weeping willow. Completely naturalized in South Carolina.

It forms one of our most beautiful and graceful ornamental trees. Only the pistillate plant is found here; and hence it does not mature its fruit as the others do.

BALSAMACEÆ.

Liquidambar styraciflua, L. Sweet gum. Diffused; Fl. March.

U. S. Disp. 273; Pe. Mat. Med. and Therap. ii. 184; Ed. and Vav. Mat. Méd. 303; Journ. Phil. Coll. Pharm. vi. 190; Royle, Mat. Med. 562; Bergii, Mat. Med. ii. 798; Linn. Veg. M. Med. In former times, the resin was used in scabies; and it is said (Am.

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Herbal, by J. Stearns) to be useful in resolving hard tumours in the uterus. The Indians esteemed it an excellent febrifuge, and employed it in healing wounds. Mér. and de L. Dict. de M. Méd. iv. 128, and the Supplem. 1846; Ann. de Montpellier, 1805, 327; Journ. de Pharm. vii. 339, and vii. 568; Bull. de Thérap., Oct. 1833, where D. L'Héritier proposes to treat blennorrhagias and leucorrhœas with liquid styrax. A kind of oil, called copalm, is extracted from it in Mexico, which, when solidified, is called copalm resin: this is an excitant of the mucous system, and it is given in chronic catarrhs, and in affections of the lungs, intestines, and urinary passages: this is cordial and stomachic; it excites both perspiration and urine; it is also used in perfumery. In South Carolina, the temperature is not high enough for this tree to furnish much gum. Dr. Griffith experimented with it in the latitude of Baltimore, and obtained a small quantity by boiling the twigs and branches; he found that it exists in greatest abundance in the young trees, just before the appearance of the leaves. It is about the consistence of honey, of a yellow colour, and of a pleasant balsamic odour and taste. The tree is of rapid growth, and is ornamental, frequently assuming the appearance of a sugar loaf. The wood is soft, but not durable.

Callitrichaceæ.

Callitriche verna, W. " *heterophylla*, Ell. Sk.	Water chickweed. Grows in shallow water; collected in St. John's; vic. of Cha'ston; Fl. May.

Shec. Flora Carol. 326. It is considered by the planters a valuable diuretic remedy in dropsy. The tincture of the whole plant in spirits is employed. A decoction is given to horses, when diuresis is desired.

Santalales.

Nyssa aquatica, L. Black gum. The roots are immersed in inundated soils; collected in St. John's; observed in Fairfield district; vic. of Cha'ston.

The roots are white, spongy, and light, and are sometimes used in this State as a substitute for cork. Birds are fond of the fruit of this genus.

Thymelaceæ. (*The Mezereum Tribe.*)

According to Lindley, the great feature of this tribe is the caus-

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ticity of the bark, which acts upon the skin as a vesicatory, and causes excessive pain in the mouth when chewed.

Dirca palustris, L. Leather wood. Grows near Augusta at Colleton's Neck, (Ell.) Bartram found it near Savannah; Fl. Feb. Mér. and de L. Dict. de M. Méd. ii. 659; U. S. Disp. 1253; Coxe's Am. Disp. 259; Shec. Flora Carol. 513; Big. Am. Med. Bot. ii. 157; Barton's Collec. 32; Griffith, Med. Bot. 562; Raf. Med. Fl. i. 158. The berries are said to be narcotic and poisonous, and the bark has a nauseous odour and acrid taste, yielding its virtues to alcohol; viii grains of the powdered bark will produce violent vomiting, followed by purging. When applied to the skin, it blisters like mezereon. The juice has been applied to the nerve of a painful tooth with relief, and in diseases where acrid masticatories are serviceable. Bigelow says the decoction is sudorific and expectorant, and he considers it a good substitute for senega. The bark is also uncommonly tough, and was used by the Indians for cordage; the wood is very hard and pliant.

LAURACEÆ. (*The Cinnamon Tribe.*)

The qualities of the species of this order are uniform, being universally aromatic, warm, and stomachic.

Sassafras officinale, Nees. } Sassafras. Diffused in upper
Laurus sassafras of Ell. Sk. } and lower country; Fl. March.

Bell's Pract. Dict. 411; Eberle, Mat. Med. ii. 320; Drayton's View, 68; Ed. and Vav. Mat. Méd. 341; U. S. Disp. 640; Royle, Mat. Med. 518; Pe. Mat. Med. and Therap. ii. 253; Cullen's Mat. Med. ii. 200 and 579; Big. Am. Med. Bot. ii. 142; Murray's Apparat. iv. 835; Kalm's Travels, 11; Hoffman's Obs. Phys. Chem. 31; Clayton's Phil. Trans. viii. 332; Bremaine, "Sassafralogia," in 1627; Woodv. Med. Bot.; Griffith's Med. Bot. 552; Thornton's Fam. Herb. The plant contains an essential oil, obtained by distillation, which is heating, sudorific, and diuretic, and which is used to disguise the taste of medicines. In the Supplem. to Dict. de M. Méd. 426, 1846, it is reported that the essential oil, when placed in a temperature of 40° Fahr., will form crystals, which, being exposed to heat, return to pure oil: from the Report in the Lond. Med. Journ. vii. 2501.831; Researches on the ess. oil of sassafras, in the Comptes Rendus Hebd. des Sc. de l'Acad. des Sc. xviii. 705. After the conquest made by the Spaniards in Florida, sassafras was used in the treatment of syphilis,

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warm infusion being applicable in cutaneous disease, by acting on the emunctories. The root is employed in this State, in combination with guaiac, sarsaparilla, and China briar (Smilax), in the formation of diet drinks. It is diaphoretic and diuretic, useful in rheumatism, and Alibert speaks highly of it in gout. The pith of the young branches, according to Eberle, contains a great deal of mucilage; which is "an exceedingly good application in acute ophthalmia, and no less useful in catarrhal and dysenteric affections;" it is not affected by alcohol; Griffith (Med. Bot. 552) also speaks favourably of it as an application to inflamed eyes, being effectual in the removal of the irritation so constant in this complaint. It is advantageously given as a demulcent drink in disorders of the respiratory organs, bowels, and bladder; being more efficacious than that prepared from the leaves of Benne (Sesamum Indicum). It might be used as a substitute for acacia. The oil extracted from this plant is one of the heaviest of the volatile oils. Dr. B. S. Barton states that it has been found an efficacious application to wens. Coll. i. 19. G. Velsch, "Lignum sassafras et radice diversum," Miscel. cur. Nat. 332, 1670; C. J. Trew, Brevis Hist. Nat.; Arboris Sassafras dictæ (Nova acta Acad. Nat. Cur. ii. 271); G. D. Ebret de Arboribus Sassafras dictis et Londini cultis (Nova acta ii. 236); Obs. on the Sassafras, in Obs. sur la Physique, xxiv. 63; Bonastre, Mém. sur l'huîle volatile de Sass. (Journ. de Pharm. xiv. 645.) And, also, A. Buchner upon the Crystallization of the oil of Sassafras.

Benzoin odoriferum, Nees V. Es. *Laurus benzoin*, L. Ell. Sk.	Spice bush; fever bush. Grows along rivulets; collected in St. John's, Charleston district. Richland, Prof. Gibbes. Fl. April.

Mér. and de L. Dict. de M. Méd. iv. 51; U. S. Disp. 1233; Lind. Nat. Syst. Bot. 201; Griffith's Med. Bot. 553; Barton, 295. This is another of our highly aromatic, indigenous shrubs; the bark is, besides, stimulant and tonic; "extensively used, in North America, in intermittent fevers." The berries contain an aromatic oil, which is esteemed, in some parts of the country, as an application to bruises, rheumatic limbs, &c. It is said to have been employed, during the Revolutionary war, as a substitute for allspice. B. S. Barton states that an infusion of the twigs has been found efficacious as a vermifuge; the flowers are employed in the place of those of the sassafras. We

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have observed that the bark of any portion of the plant is highly aromatic to the taste.

Laurus geniculata, Walter. Pond spice. Grows around ponds; vic. of Cha'ston. This also is aromatic.

ARISTOLOCHIACEÆ. (*The Birthwort Tribe.*)

Generally tonic and stimulating.

Aristolochia serpentaria, L. Serpentaria; snakeroot. Diffused; Richland; vic. of Cha'ston; Fl. June.

Bell's Pract. Dict. Mat. Med. 420; Trous. et Pid. Mat. Méd. i. 336; Ed. and Vav. Mat. Méd. 249; Eberle, Mat. Med. i. 280; Le. Mat. Med. i. 163; Frost's Elems. Mat. Med. 520; Royle, Mat. Med. 532; U. S. Disp. 658; Pe. Mat. Med. and Therap. i. 231; Journ. de Pharmacie, vi. 365; Journ. de Chim. Méd. vii. 493; Sydenham, Peechey's Trans. 4th ed. 33; Ball. and Gar. Mat. Med. 375; Cullen, Mat. Med. ii. 85; Bergii, Mat. Med. ii. 765; Mér. and de L. Dict. de M. Méd. i. 415; Big. Am. Med. Bot. iii. 82; Murray, Apparat. Med. i. 348; Chap. Therap. and Mat. Med. ii. 411; Lind. on Hot Climates, 104, 254; Shec. Flora Carol. 203; Lind. Nat. Syst. Bot. 206; Bart. M. Bot. 251; Woodv. Med. Bot.; Griffith's Med. Bot. 829; Linn. Veg. M. Med. 166; Bull. Plantes Vén. de France, 83; Thornton's Fam. Herb. This plant is well known as a tonic, diuretic, and diaphoretic, of great value in the low stages of fever, as in typhus, in chlorosis, and in atonic affections of the intestinal canal; indicated where we wish to stimulate and excite at the same time a free diaphoresis and diuresis. It is also useful in promoting the cutaneous excretions in exanthematous diseases, where the eruptions are tardy. The infusion is serviceable in restraining vomiting: much use is made of this plant among the negroes in this State, particularly in the low stages of pneumonia, to which they are particularly liable: we have observed the good effects of both this and the seneca snakeroot (Polygala senega) in this affection. The dose of the powdered root is x—xxx grains; of the infusion of ℥j to one pint of water, ℥ij may be taken as often as occasion requires. Its effects are increased by combining it with camphor. Dr. Thornton (Fam. Herb. *cit. sup.*) used it in typhus fever; ʒij of the tincture, combined with ten grains of the powder and five drachms of the tincture of opium, may be given every hour. It is said to add much to the efficacy of bark.

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Aristolochia hastata. Rich shaded soils; Fl. June.

U. S. Disp. 658; Am. Journ. Pharm. xiv. 121. It is said to be similar in properties to the A. serpentaria.

Aristolochia sipho. Shec. Fl. Carol. 205. Similar in properties to the others.

Asarum Canadense, L. Wild ginger; Canada snakeroot. Rich soil; collected in St. John's; Fl. April.

U. S. Disp. 125; Pe. Mat. Med. and Therap. ii. 243; Frost's Elems. 220; Med. Journ. Pharm. x. 186; Dict. Univ. des Drogues Simples, Ann. 1733; Cullen, Mat. Med. ii. 473, 553; Mér. and de L. Dict. de M. Méd. i. 463; Big. Am. Med. Bot. i. 149; Schœpf, Mat. Med. 72, in *op. cit.;* Barton's Collection, 26, 48; Coxe, Am. Disp. 368; Lind. Nat. Syst. Bot. 206; Griffith's Med. Bot. 527. An aromatic, stimulant tonic, and diaphoretic, "applicable in similar cases with serpentaria." It is employed in cases requiring a medicine of this class: and is used in colic where no inflammation exists. Dr. Firth gave it with benefit in the tetanus of children arising from cold. The leaves, dried and powdered, have powerful errhine properties. They were once considered actively emetic (Shec. Fl. Carol. 219); but this has been denied by Bigelow and Barton, *op. cit.* The root is often used as a substitute for ginger, to which it is said to be fully equal. According to Bigelow's examination, it contains a pungent volatile oil and a resin, which communicate to alcohol the virtues of the plant, fecula, a gum, mucus, &c., *op. cit.* 153, 1. By the Anal. of Mr. Rushton, quoted in Griffith's work from the Am. Journ. Pharm. x. 81, and more recently of Mr. Procter, *ibid.* xii. 177, it is shown that the active principle is an aromatic, essential oil, and that it contains neither asarin nor camphor.

This plant may be given either in powder, tincture, or infusion; dose of powder, grs. xxx.

Asarum Virginicum. Heart snakeroot. Grows in rocky soils; Fl. July.

Shec. Flora Carol. 218; Frost's Elems. Mat. Med. 219; "a stimulating diaphoretic, fully equal to the Arist. Serp." Probably possessed of similar properties to the other.—Milne, in his Ind. Bot. 73, alludes to this species as one of the strongest of the vegetable errhines; the root and leaves being used. "The fresh leaves, applied to the nostrils, speedily terminate attacks of slight cold by the dis-

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charge which they induce." Those who snuff find it a valuable addition to tobacco, the dried leaves being powdered, and mixed with it. The decoction and infusion of this were considered emetic, and great relief was said to have been afforded by it in periodical headaches, vertigos, &c.; ℈j of the fresh, or ʒj of the dried root and leaves, was employed as an emetic and cathartic.

Asarum arifolium, Mich. Grows in shaded, rich soils; collected in St. John's, Berkley; near Whitehall Pl.; vic. of Chas'ton; Fl. May.

Shec. Flora Carol. 217. This, no doubt, partakes of the properties of the others, if it is not identical; Linnæus proposes it as a substitute for hippo; and Dr. Cutler says that the powdered root, in moderate doses, acts as a gentle emetic, given in substance ʒjss. The "tincture possesses both emetic and cathartic virtues." This, like the former, is a very powerful sternutatory; when the powdered leaves are used, the discharge from the nose will sometimes last for three days, hence it has been applied in this way with great advantage in stubborn disorders of the head, palsies, &c. "A case in which there was paralysis of the mouth and tongue was cured by one application of it."

AMARANTACEÆ. (*The Amaranth Tribe.*)

The leaves of many of the species are wholesome and mucilaginous.

Achyranthes repens, Ell. Forty-knot. Diffused; grows in Fairfield district, and in the streets of Charleston.

Ell. Bot. Med. Notes, i. 311. It is possessed of well-marked diuretic properties, and is employed in ischury and dysury, and in the gravelly complaints of old persons. In Fairfield district, S. C., it has lately been employed with decided success in several cases of dropsy, but sharing the fate of all other diuretics, in being sometimes inefficient in cases depending upon organic changes, or produced by causes other than those connected with the circulation. It is given in decoction—a handful of the herb to a pint of water—of which, a wineglassful is taken three times a-day.

CHENOPODIACEÆ. (*The Goose Foot Tribe.*)

Some are wholesome, others possess an essential oil, which is

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tonic and antispasmodic. The beet and spinach, cultivated in this State, belong to this order.

Atriplex laciniata, L. Jagged sea orach. Grows along salt streams; Fl. July.

Shec. Flora Carol. 247. The expressed juice, in doses of grs. iv—viii, is said to act as a powerful purgative. According to Schœpf, it is used as a substitute for gamboge in dropsy and asthma.

Chenopodium anthelminticum, L. Jerusalem oak; worm seed. Diffused; collected in St. John's; vic. of Cha'ston; Fl. July.

Linnæus, Veg. M. Med.; Pe. Mat. Med. and Therap. ii. 274; Eberle, Mat. Med. 218; Ell. Bot. i. 331; Chap. Therap. and Mat. Med. ii. 71; Drayton's View of S. C. 65; Frost's Elems. Mat. Med. 191; U. S. Disp. 206; Bart. M. Bot. ii. 183; Am. Journ. Pharm. v. 180; Bergii, Mat. Med. i. 183; Griffith's Med. Bot. 538. It is well known as "one of our most efficient indigenous anthelmintics," adapted to the expulsion of lumbrici in children. Eberle employed the oil of the seeds with success in these cases, after every other remedy had failed. The dose to a child under five years is two drops; to an adult, thirty drops, given on sugar grated in water. The expressed juice may be used, or a decoction of the leaves in milk, a wineglassful at a dose. These plants may not differ materially from each other. They are much used on the plantations of this State for their anthelmintic properties.

Chenopodium botrys, Ph. Jerusalem oak of some. Grows near Columbia; Fl. August.

U. S. Disp. 206; Le. Mat. Med. 235; Ed. and Vav. Mat. Méd. 304; Bergii, Mat. Med. i. 181; Mér. and de L. Dict. de M. Méd. ii. 225; Shec. Flora Carol. 388; Dém. Élém. de Bot. 250. The juice is similar to the other, being carminative, pectoral, emmenagogue, and vermifuge: the essential oil is antispasmodic, tonic, and vermifuge. An infusion, as tea, is resolutive and expectorant, and is useful in flatulent colic, spasmodic cough, humoral asthma and in hysteria. The expressed juice of this species is given in doses of a tablespoonful in molasses to children affected with worms, or the seeds are reduced to a powder, and made into an electuary, with syrup. See Milne, Ind. Bot. 76; Linn. Veg. M. Med. 41. "It is asserted," observes Shec., Flora Carol. 389, "that the whole seeds produce worms in the stomach, and if a parcel be baked in a loaf of bread, they

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will generate worms; such is the belief; what credit may be due to it, I leave to the determination of those who either have, or may hereafter, put it to the trial!"

Chenopodium ambrosioides, Ph. Vic. of Cha'ston. Bach. Grows in Georgia, according to Pursh; Fl. July.

Lind. Nat. Syst. Bot. The essential oil of this is also tonic and antispasmodic. U. S. Disp. 206. Plenk reports five cases of chorea cured by the infusion, made with ʒii to ℥i of water, of which a cupful is to be taken morning and night. Mér. and de L. Dict. de M. Méd. ii. 222. M. Mack used it, with equal success, in the hospital at Vienna, in this and in other nervous affections: see also the Supplement to the work last mentioned, 1846, p. 165. It is employed by M. Martius in the injection of the mucous membrane of the lungs. MM. Rilliet and Barthez used it in the chorea of infants particularly. Ann. des Sci. Nat. xii. 220; Bouchardat, Ann. de Thérap. 1844; Gazette de Méd. de Saltzburg, Bill. Med. xii. 516. It is found, by chemical analysis, to possess various products, the most important of which are gluten and a volatile oil. Bull. des Sc. Méd. de Férus, vii. 225. The infusion emits a very strong aromatic odour, and is used in parts of this country in the place of tea.

Chenopodium album, L. Richland, L. Gibbes; vic. of Cha'ston. Bach.

Mér. and de L. Dict. de M. Méd. ii. 223; Phys. Med. Trans., Calcutta, ii. 40. It is a sedative and diuretic; used in hemorrhoids. Chevallier remarks the singular fact that the C. vulvaria, a foreign species, exhales pure ammonia during its whole existence. This is the only observation on record of a gaseous exhalation of azote by perfect vegetables. And the facility with which this principle is abandoned by ammonia may, perhaps, explain the presence of azotic products in the vegetable kingdom. Ann. des Sci. Nat. i. 444; Lind. Nat. Syst. Bot. 209. It might be interesting to observe whether anything of this kind takes place in our species.

PHYTOLACCACEÆ. (*The Virginia Poke Tribe.*)

Phytolacca decandra, L. Poke. Diffused in rich spots; Fl. July.

U. S. Disp. 537; Big. Am. Med. Bot. 135; Bell's Pract. Dict. 355; Bart. M. Bot. ii. 213; Am. Journ. Pharm. xv. 169; Murray's App. Med. iv. 335; Kalm, Travels in N. Am. p. 197; Graffenreid,

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Mem. Berne, iii. 185; Schœpf, M. Med. 71; Browne, Hist. Jamaica, 232; Amæn. Acad. iv.; Miller's Dict. art. Phyt. Dec.; Sprogel, Diss. Cirven. 24; Beckman, Com. 1774, 9; Allioni, Flora Ped. ii. 132; Franklin's Works, i.; Cutler, Mem. Am. Acad. i. 447; Rush, i. 259; Thacher's U. S. Disp. 300; Shultz's Inaug. Diss. N. Am. Journ. vi.; Journ. de Méd. de Corvisart Leroux, xvi. 137; Ann. de Chim. lxii. 71; Mér. and de L. Dict. de M. Méd. v. 298; Coxe, Am. Disp. 486; Lind. Nat. Syst. Bot. 210. The juice of the leaves or berries, inspissated in the sun, to the consistence of an extract, will, it is said, discuss hard tumours if applied to the part, "and destroy cancers by eating them out by the roots!" (Am. Herbal, by J. Stearns.) Mixed with brandy, it is extolled in the cure of rheumatism, easing pain, and producing discharge of the cutaneous and urinary secretions. ℥j of the dried root, infused in a pint of wine, is said to act kindly as an emetic, in doses of two tablespoonfuls. Bigelow also was of the opinion that it resembled ipecacuanha in its mode of operation; but later experimenters give an unfavourable report, as it is sometimes uncertain, acting too powerfully by accumulation. The pulverized root is also emetic in doses of ʒi—ʒii. "The tincture of the ripe berries seems to have acquired a well-founded reputation as a remedy in chronic and syphilitic rheumatism, and for allaying syphilitic pains." By some thought to be more useful than guaiac. The decoction has been used in scrofula also. A spirit distilled from the berries killed a dog in a few moments, by its violent emetic effect; and, according to De Candolle, it is a powerful purgative. The French and Portuguese mixed it with their wine, to give it colour, and this was prohibited by royal ordinance of Louis XIV. "on pain of death, as it injured the flavour!" Lind. Nat. Syst. Bot. 210; Mér. and de L. Dict. de M. Méd. state that two spoonfuls of the juice of the old plant, which is acrid, will purge violently; applied externally, it will irritate the skin, and it is used in the cure of sanious ulcers, cutaneous eruptions, itch, and hemorrhoids; for the latter affection, an infusion is injected per rectum. Drs. Jones and Kollock, of Georgia, assure us (adds Mérat) that they cure syphilis with it, in all its stages, without the use of mercury. Dr. Rush relates that several students of Yale College were severely purged from eating the flesh of pigeons which had fed on the berries. From the analysis in Annal. de Chimie, lxii. 71, it is shown to contain an enormous quantity of potash, 42 in 100 parts, and it is proposed to cultivate it for the manufacture of this article. From later examinations of Dr. E. Donnelly (Am. Journ. Pharm. ix. 168), it

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appears to contain gum resin 262, starch 20, potash 2, a small quantity of fixed oil, and 66.5 of woody fibre. According to the U. S. Disp., it is also somewhat narcotic, and, as an emetic, is considered very slow in its operation, sometimes not acting for several hours, and then frequently upon the bowels; but the vomiting produced by it is not attended with pain or spasm. In over doses, its effects are quite dangerous. As an alterative, the dose is from one to five grs. Dr. Griffith has also used it with success in syphilitic rheumatism. (Med. Bot. 535.) In the Supplement to the Dict. Univ. de M. Méd. 1846, 557, it is said to have been used with good effect in paralysis of the intestines. Précis des Travaux de l'Acad. de Rouen, 188, 1838; Comptes Rendus Hebdom. des Sc. iv. 12, Jan. 1837. The ointment, prepared by mixing ʒj of the powdered root or leaves with ℥j of lard, has been applied with advantage in diseases affecting the scalp, as psora, tinea capitis, &c. Dr. Bigelow was successful with it, and Dr. Haynard cured cases in which sulphur had failed. A gentleman informs us that he has frequently seen the sores of secondary syphilis heal up by the application of a strong decoction of the roots. Dr. Braconnot considers the yellow liquor, produced by the juice of the berries, one of the most delicate tests of the presence of acids. Dr. Shultz procured from half a bushel of the berries six pints of spirits, sufficiently strong to take fire and burn with readiness. The root of the plant should be dug in autumn, sliced, dried, and kept in close-stopped bottles.

Polygonaceæ. (*The Buckwheat Tribe.*)

The leaves and roots are generally acid and agreeable; the roots universally nauseous and purgative.

Rumex crispus, L. Dock. Grows around buildings; diffused, collected in St. John's; Fl. June.

Ell. Bot. 414; U. S. Disp. 606. The decoction is astringent, alterative, and tonic, uniting a laxative power with these, and resembling rhubarb in its mode of operation. It has been used with success as an alterative, in itch and syphilis; the powdered root with milk, or as an ointment, is applied externally in scabies. It is recommended as a dentifrice, especially where the gums are spongy. It is supposed that our species possesses all the virtues of the officinal: ℥ii of the fresh root, or ℥j of the dried, may be boiled in a pint of water, of which ℥ij can be taken at a dose.

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Rumex acetosella, Walt. Flora Carol. Sorrel. Abundant in sandy pastures; coll. in St. John's; Richland, Gibbes; Fl. June.

U. S. Disp. 605; Pe. Mat. Med. ii. 279; Ed. and Vav. Mat. Méd. 536; Bergii, Mat. Med. i. 300; Griffith, Med. Bot. 546. This is also considered one of the most valuable of the species. It is refrigerant and diuretic, and is employed as an article of diet in scorbutic complaints; the young shoots may be eaten as salad; but it is said to prove injurious in large quantities, on account of the oxalic acid existing in it. The acid taste is owing to binoxalate of potash and tartaric acid; this is almost destroyed by drying.

Rumex sanguineus, Walt. Flora Carol. Dragon's Blood. Grows around Charleston; Fl. July.

Dém. Élém. de Bot. 240. The root is astringent, stomachic, and eccoprotic. Linn. Veg. Mat. Med. 65. These and the seeds are used in dysentery and wounds; referred to in Mér. and de L. Dict. de M. Méd. vi. 136, as a mild astringent. Journ. de Méd. xxiii. 415. Dr. Wood, in the U. S. Disp. 606, states that it may be used indiscriminately with the officinal.

Rumex Britannicus, Walt. Swamps and along streams; Fl. May. U. S. Disp. 606.

Polygonum punctatum, Ell. Sk.
" *hydropiperoides*, Ph.
" *hydropiper*, Mx.

Water pepper; Biting knot weed. Grows in damp, rich soils; coll. in St. John's, where it grows abundantly; observed in Cha'ston; Richland, Gibbes; Fl. July.

Eb. Mat. Med. i. 441; U. S. Disp. 559; Ed. and Vav. Mat. Méd. 128; Le. Mat. Med. ii. 193; Ogier, in So. Journ. Med. and Pharm. 1846; Mér. and de L. Dict. de M. Méd. v. 433. In the Bull. Plantes Vén. de France, 140, the young leaves are said to ease the pain of gout, and the decoction is used with great success for dissipating old ulcers. Dém. Élém. de Bot. iii. 267. The expressed juice is an excellent diuretic, and is applied to putrid ulcers; "aqua hujus stillatitia efficax est ad comminuendum calculum etiam vesicæ." See Ray's Catalogus Plantarum, 230. This plant is, however, more remarkable for its power in amenorrhœa. Eberle asserts that he employed it in twenty cases, and was never more successful. Dr. Ogier, of Charleston, S. C., has published cases in the journal alluded to

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above, confirming its value. ℥j—ii of the strong infusion is given two or three times a day, or a tincture may be used.* The juice of this plant is very acrid and caustic to the taste. It is stated, in the Flora Scotica, 207, that it is found a convenient and useful application for driving off flies from wounds, occurring on cattle for instance; the decoction will dye a yellow colour. Linn. Veg. Mat. Med. 71; Boyl, de Util. Philosoph. Nat. pt. ii. 69. This plant should be selected with care, as it differs but slightly from the P. mite, and others, which possess no value. It may be distinguished by its burning taste, by the sharp pellucid leaves, and simple flower stalk, with the stamens and pistil of equal length. The stipules are long, truncate, and fringed, with the margin and midrib of the leaves slightly scabrous.

Polygonum aviculare, L. Knot grass. Diffused; grows in pastures and yards; Richland; collected in St. John's; observed in the streets of Charleston; Fl. July.

Lind. Nat. Syst. 211; Mér. and de L. Dict. de M. Méd. v. 440; U. S. Disp. 558. According to the Encyclopedia, the root is powerfully astringent, and is used in diarrhœa, and in uterine hemorrhage. Dém. de Bot. iii. 268; Linn. Veg. M. Med. 72; Am. Herbal, 164. It is stated, in the Supplem. to the Dict. de M. Méd. 1846, 578, that Dr. Bourgeois announced, in 1840, that this plant was an excellent febrifuge, and was used in middle Africa and Algeria, as a substitute for quinine, and, furthermore, that the assertion was not doubted. Dr. Levrat Perroton, of Lyons, gives it as an excellent remedy for chronic diarrhœa, using a strong decoction for a month or more; he reports nine cases cured, which had resisted other plans of treatment. See Revue Médicale, Nov. 1845; Flor. Méd. ii. 107. It has also been administered in hematemesis. This plant had some reputation in these diseases in former times. It was said to be emetic and purgative, useful in hernia, and in arresting the vomiting of blood, and was regarded as an excellent vulnerary in moderating fluxes, diarrhœa, and dysentery. Griffith, in his Med. Bot. 546, observes that the emetic property, so unusual in this genus, is thought by De Candolle to reside in the testa. Thunberg, in his "Voyage," mentions that, in Japan, they obtain a colour from it similar to that from indigo.

* Mr. P., of Charleston, informs us that he has repeatedly found an ointment made with the leaves give immediate relief when applied to piles, in an irritable and painful condition.

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Polygonum polygama, Vent. and Malt. } Grows in sandy pine
" *parvifolia*, Mx. } barrens, Richland dist.

Big. Am. Med. Bot. iii. 129; U. S. Disp. 558. In small doses, it is tonic; in large, laxative and diaphoretic. Bigelow says the infusion is useful in imparting tone to the digestive organs.

Polygonum convolvulus, and scandens, L. Grows in dry soil and pastures; collected in St. John's; vic. of Cha'ston; Fl. Aug.

Griffith's Med. Bot. 547. "The seeds closely resemble buckwheat, and may be substituted for them."

Polygonum fagopyrum. Buckwheat. Cultivated in this State.

MENISPERMACEÆ. (*The Cocculus Tribe.*)

Menispermum Canadense, L. Moonseed; yellow parilla. Ell. never saw it, but *thinks* that it grows in the mountains. Dr. Gray determines a specimen sent from St. John's, Charleston district, by H. W. Ravenel, Esq., to be this. Fl. July.

U. S. Disp. 1275. It is said to be much used in Virginia by physicians; and in domestic practice, as a substitute for sarsaparilla, in scrofulous and cutaneous affections. Ryddel, in his Synops. West. States, says that the roots are tonic, alterative, and diuretic. Griffith, Med. Bot. 103. It is also employed by the vegetable practitioners. See Howard's Imp. Syst. Bot. Med. 334.

PYROLACEÆ. (*The Winter Green Tribe.*)

Chimaphila maculata, Pursh. } Spotted winter green. Shaded
Pyrola, " Linn. } soils; diffused; collected in St. John's; vic. of Cha'ston.

Chap. Therap. and Mat. Med. i. 313; Eberle, Mat. Med. ii. 321; Ell. Bot. Med. Notes, 505; Eat. Man. Bot. 240; Bell's Pract. Dict. 128; Mitchell's Inaug. Thesis, 1803; Ed. and Vav. Mat. Méd. 320; Pe. Mat. Med. and Therap. ii. 380; U. S. Disp. 208; Bart. Collec. ii. 21; Lind. Nat. Syst. Bot. 219; U. S. Disp. 207; Frost's Elems. Mat. Med. 281. See P. umbellata. "Every part of the plant is possessed of considerable activity;" and it is very valuable as a diuretic in dropsy. See Mitchell's Thesis, and Dr. Summerville's paper in Lond. Med.-Chirurg. Trans. vol. v. It is particularly useful in those cases attended with disordered digestion and general debility, for, in these, its tonic properties, and general acceptability to the stomach, prove highly useful auxiliaries to its diuretic powers. It has been

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successfully administered in ascites, in dysuria and ischuria, gravel, strangury, hæmaturia, acute rheumatism, and in various intermittent disorders. The Indians considered it of universal efficacy; but employed it particularly in nephritic, scrofulous, and rheumatic disorders. Dr. Wood, in the U. S. Disp., states that it does prove of benefit in obstinate, ill-conditioned ulcers, and cutaneous eruptions supposed to be connected with a strumous diathesis: used both internally and locally, as a wash. The decoction and watery extract are employed.

Pyrola rotundifolia. Grows in South Carolina. See Chimaphila.

MONOTROPACEÆ.

Monotropa uniflora. Fit root. Grows in roads; attached to roots; collected in St. John's.

This is used by the steam practitioners. See Howard's Impr. Syst. Bot. Med. 339.

ERICACEÆ. (*The Heath Tribe.*)

Generally astringent and diuretic.

Andromeda mariana, L. Dry soils. Richland; vic. of Cha'ston; Fl. May and July.

U.S. Disp. 1238, app.; Mér. and de L. Dict. de M. Méd. i. 289. Coxe, Am. Disp. 84; Shec. Flora Carol. 156. It is employed in domestic practice; a remedy for herpes. The decoction is used as a wash for ulcers, to which negroes are liable. The honey, which bees extract from this, is slightly poisonous. See Nicholson's Journal, 163.

Andromeda nitida, Walt. Grows in damp, pine land, bogs; collected in St. John's; Fl. April; vic. of Cha'ston.

Ell. Bot. Med. Notes, i. 483. A decoction of the leaves of this also is used in the cure of itch. The young branches, deprived of their pith, form good pipe stems; and the bark, with copperas, yields a purple dye.

Andromeda arborea. Sorrel tree. Diffused; grows in upper country; collected in St. John's; Fl. July.

U. S. Disp. 1227. The leaves, when chewed, allay thirst.

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Andromeda speciosa, Mich. Vic. of Cha'ston; Bach. U. S. Disp. 1228. It is said to be a powerful errhine.

Andromeda angustifolia, Ph. Vic. of Cha'ston.

Griffith, Med. Bot. 223. This and the A. mariana are said to be poisonous to sheep.

Gaultheria procumbens, Ph. Spicy winter green; mountain berry. Grows in the mountains of South Carolina. Dr. MacBride. Fl. May.

U. S. Disp. 345; Big. Am. Med. Bot. ii. 29; Lind. Nat. Syst. Bot. 221; Bart. M. Bot. i. 178; Kalm, Amœn. Acad. iii. 14; Bart. Collec. i. 19; Raf. Med. Fl. i. 202; Griffith, Med. Bot. 425. It possesses stimulant aromatic properties, united with astringency: hence used with advantage in some forms of chronic dysentery. It is said to have also some anodyne power. The infusion of the leaves has been found beneficial in amenorrhœa, attended with debility; and in promoting the mammary secretion when deficient. In the Revolutionary war, it was used as a substitute for tea. The berries, which are aromatic and pleasant, are employed to flavour spirituous liquors. An infusion of them in brandy is a convenient and useful substitute for the ordinary bitters. An essential oil is obtained from the leaves by distillation. From Mr. Procter's examination (Am. Journ. Pharm. viii. 211, and ix. 241), it is shown to possess acid properties, and to have the same composition as the salicilate of methylene. It is one of the heaviest of the essential oils, having a specific gravity, 1.173, with a burning, aromatic taste, mixing with alcohol or ether in all proportions. This is found, also, in the Betula lenta, some of the Spireas, &c. It is applied with good effect to diminish the sensibility of nerves affected by carious teeth, and to disguise the taste and smell of nauseous medicines.

Rhododendron maximum, L. Mountain laurel; wild rose, bay. Grows among the mountains; Fl. July.

Lind. Nat. Syst. Bot. 221. "It is well known to be possessed of poisonous properties." Mér. and de L. Dict. de M. Méd. vi. 75. Employed with success in chronic rheumatism, gout, and glandular enlargements: the petioles act as a sternutatory. Coxe, Am. Disp. 526; Big. Am. Med. Bot. iii. 103. It is a resinous astringent, it leaves containing tannin; but its supposed poisonous narcotic power is doubted by some, as Bigelow swallowed an entire leaf, and no bad

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effects resulted. B. S. Barton, however, in his Collections, i. 18, says it is certainly poisonous. The brown powder attached to the footstalks possesses considerable power as an errhine. The purple variety, one of the most beautiful, grows in South Carolina.

Rhododendron punctatum, L. and Ph. Grows at the head branches of rivers in South Carolina and Georgia; "Tugoloo branches of the Savannah;" Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 75; Griffith, Med. Bot. 428. A stimulant and astringent. Michaux says it furnishes to bees a deleterious honey.

Kalmia latifolia, L. Calico bush; ivy bush. Grows along rivers in upper districts; Richland, Gibbes; at Sister's Ferry, Savannah River; Fl. July.

Drayton's View of S. C. 69; Ell. Bot. i. 481; U. S. Disp. 1269; Big. Am. Med. Bot. i. 133; Kalm's Travels, i. 335; Barton's Coll. i. 18, 48, and ii. 26; Thacher's Disp. 247; Thomas's Inaug. Diss., Raf. ii. 16; Griffith, Med. Bot. 428. The leaves are poisonous and narcotic, and animals have been poisoned by eating them. It is said that death has been occasioned by eating the flesh of partridges and pheasants which had fed on them. Dr. Shoemaker publishes two cases; see N. Am. Med. and Surg. Journ. Thomas, in Inaug. Diss. Phil. 1802, reports cases of obstinate diarrhœa cured by a decoction, thirty drops being taken four times a day. The leaves have been advantageously used in syphilis, and extensively applied in tinea, psora, and cutaneous affections. Dr. Barton states that nervous symptoms have resulted from the external use of the strong decoction, thirty drops taken internally six times a day producing vertigo. Dr. Bigelow detected in the leaves tannin, a resinous matter, and gum. Besides these, Dr. Stabler finds a volatile oil of a narcotic odour and nauseous smell, supposed to be the active principle: see Am. Journ. of Pharm. x. 241; Griffith, Med. Bot. 428. From these experiments of Dr. S., he determines it to be a direct arterial sedative, without any acrid or narcotic property; hence, he supposes it suitable to cases of hypertrophy of heart, and other diseases, when it is necessary to decrease the action of that organ; and from the tannin present, that it is peculiarly fitted for cases of hemorrhage, dysentery, &c. He proposes that ℥ij of the leaves be macerated in a pint of alcohol for a week, and then strained, the dose of which for an adult is thirty drops every two or three hours. If these observa-

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tions are confirmed, it will give the plant a high reputation as a sedative, and attention is invited to it. The wood is much used for mechanical purposes, being hard and dense.

Kalmia hirsuta, Walt. Grows in wet pine barrens; vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, i. 483. The leaves are used by negroes, and the poorer white people, as a cure for itch, and for the mange in dogs. A strong decoction is applied warm to the eruptions, which occasions much smarting, and it seldom requires more than one application to effect a cure.

VACCINACEÆ. (*The Bilberry Tribe.*)

Bark and leaves are astringent, slightly tonic, and stimulating.

Vaccinium arboreum, Marsh. Farcle berry. Grows in damp soils; diffused; coll. in St. John's; vic. Cha'ston; Fl. May.

Ell. Bot. Med. Notes, i. 496; Griffith, Med. Bot. 431. The bark of the root is very astringent, and is employed in diarrhœa and bowel-complaints. The leaves also are astringent, and a decoction, as tea, is given in diarrhœa and dysentery, and as a wash in sore mouth; the fruit is more palatable, and equally as efficacious. The bark is also used for tanning. Most of the species possess qualities similar to this one. Some of those in S. C. bear fruit very pleasant to the taste, and are generally known as huckleberries.

PRIMULACEÆ. (*The Primrose Tribe.*)

More remarkable for beauty and fragrance than for their sensible properties.

Anagallis arvensis. Red chickweed; scarlet pimpernel. Nat. on Sullivan's Island. Coll. in St. John's, Berkley; Fl. July.

U. S. Disp. 1227; Le. Mat. Med. i. 80; Mér. and de L. Dict. de M. Méd. i. 276; Orfila, Toxicologie, ii. 275; Woodv. Med. Bot. Mém. Acad. Royale de Méd. 18 Mars, ann. 1826.

This plant enjoyed great reputation at one time, and was said to possess sudorific, vulnerary, anti-epileptic, and anti-hydrophobic virtues. Woodville states that it is acrid and poisonous: it was considered very valuable for the bite of serpents, but more particularly in hydrophobia, given in the form of powder in doses of ʒij. See the report to the Econ. Soc., Berne; Dém. Élém. de Bot. ii. 124. Milne,

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in his Ind. Bot. 260, asserts that it was frequently successful even after dangerous symptoms had supervened; and the great Hoffmann himself yielded to this opinion. It "really possesses highly energetic powers, for Orfila destroyed a dog by making him drink three drachms of the extract." Lind. Nat. Syst. Bot. 224. It is used as a local application in ill-conditioned ulcers, and internally in visceral obstructions, dropsy, epilepsy, and mania.

Samolus valerandi, L. Brook weed. Vic. Cha'ston; grows in morasses; Fl. June; coll. in St. John's, Charleston dist.

Mér. and de L. Dict. de M. Méd. vi. 201; Journ. Gén. de Méd. lii. 413; Dém. Élém. de Bot. ii. 121. Lemery says it is an antiscorbutic, aperient, and vulnerary.

SAPOTACEÆ. (*The Sappodilla Tribe.*)

Bumelia lycioides, Ell. Sk. Ironwood. Vic. Cha'ston. Bach. Very rare in St. John's, Berkley. A tree on Sarazin Pl. (Mrs. I. S. Porcher's); Fl. June.

Griffith, Med. Bot. 441. The bark is said to be austere, and to be useful in bowel-complaints.

EBENACEÆ. (*The Ebony Tribe.*)

Wood generally hard and black.

Diospyros Virginiana. Persimmon. Diffused; grows abundantly in both upper and lower districts; Fl. March.

Coxe, Am. Disp. 259; U. S. Disp. 302; Ed. and Vav. Mat. Méd. 135; Am. Journ. Med. Sc., N. S. iv. 297; Mér. and de L. Dict. de M. Méd. ii. 657; Ann. Chim. de Montp. xxiv. 247; Shec. Flora Carol. 510; Lind. Nat. Syst. Bot. 227; Griffith, Med. Bot. 436. An astringent and styptic. The inner bark is used in intermittent fever, in diarrhœa, and with alum as a gargle in ulcerated sore throat. The unripe fruit is exceedingly astringent; employed whilst fresh, or dried in the sun and powdered, it is very valuable in diarrhœa, chronic dysentery, and uterine hemorrhage. It forms a convenient and useful prescription for those residing in the country, made into pills or in the shape of a spirituous tincture. Mr. B. Smith found that the green fruit contained tannin, sugar, malic acid, and woody fibre; the first disappears, and the others increase as it ripens. (Am. Journ. Pharm. xii. 157.) The juice, in the unripe state, is said to be preferable to oak bark for tanning; and a black dye may

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be extracted from it. The fruit, when matured, is very sweet and pleasant to the taste, and yields, on distillation, after fermentation, a quantity of spirits; a beer is made of it, and, mixed with flour, a pleasant bread.

Hopea tinctoria, L. Sweet leaf. Diffused; grows sparingly in the low country; vic. of Cha'ston. Bach. Collected in St. John's, Berkley; ward swamp; Fl. May.

Griffith, Med. Bot. 437. The root is esteemed a valuable stomachic. Ell. Bot. Med. Notes, ii. 177. Its leaves afford a yellow dye; they are sweet and pleasant to the taste, and are eaten by cattle. Maj. J. Le Conte informs us that the leaves and root are much used in Georgia, in syphilitic and scrofulous affections. This does not seem to be the genus *Hopea* belonging to the order *Dipteraceæ*, which furnishes such valuable resins.

Styrax. Several species grow in this State, but none are medicinal, so far as we can ascertain. It is well known that storax and benzoin are furnished by some of them.

AQUIFOLIACEÆ. (*The Holly Tribe.*)

These are generally astringent.

Prinos verticillatus, L. Black alder; winter berry. Damp soils; Fl. May.

U. S. Disp. 874; Wild. Spec. Plantarum, 275; Mér. and de L. Dict. de M. Méd. v. 15; Barton's Med. Bot. i. 203. The berries and bark are tonic and astringent, and are used in intermittent fevers, diarrhœas, and diseases connected with a debilitated state of the system, especially gangrene and mortification. It is a popular remedy in ill-conditioned ulcers, chronic cutaneous diseases, administered internally, and locally as a wash. Lind. Nat. Syst. Bot. 229. "The bark and berries possess in an eminent degree the properties of the vegetable astringents and tonics, combined with antiseptic powers highly spoken of." They are extensively prescribed in some parts of the country in diarrhœa, and as a corroborant in dropsy. The leaves are employed as a substitute for tea. The plant was used by the Indians. It may be taken in substance, in doses of thirty grains to a drachm, to be repeated, or a decoction made with two ounces of the bark to three pints of water, of which three ounces may be taken several times a-day. A saturated tincture of the bark and

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berries has also been used. Bigelow did not speak highly of this plant, but W. P. C. Barton extols it, and recommends it to the profession, having employed it on several occasions. Dr. Meara, in the Phil. Med. Museum; Griffith, Med. Bot. 434; Coxe's Am. Disp. 500.

Prinos glaber, L. Ink berry. Grows in damp soils, along bays; Richland dist.; collected in St. John's; Fl. May.

Lind. Nat. Syst. Bot. 229; Mér. and de L. Dict. de M. Méd. vi. 53. The leaves are employed as a tea. The plant probably possesses properties similar to those of the other.

Ilex opaca, L. Holly. Diffused; in rich soils; Fl. May.

Griffith, Med. Bot. 432; U. S. Disp. 1263. We are informed by gentlemen who have used this plant that the decoction of the bark of the root has been found very serviceable as a demulcent in colds, coughs, and incipient phthisis; and by Dr. Joseph Johnson, of Charleston, that the berries are serviceable as an emetic. It is asserted by some to possess properties fully equal to those of the *I. aquifolium* of Europe, the inner bark of which also yields a viscid substance called birdlime; its leaves are esteemed as a diaphoretic in the form of infusion; employed in catarrh, pleurisy, small-pox, &c. Its febrifuge virtues are supposed to depend on a bitter principle, ilicin, and the berries are considered purgative, diuretic, and emetic. The good effects resulting from the use of the I. opaca, in diseases affecting the mucous passages, may be owing to the substance contained in the inner bark. Some declare that they find it fully as efficient in intermittent fevers as the Peruvian bark. As an emetic, the berries are said to be more active than the leaves.

Ilex cassina, Mich. } Cassina grows near the sea-coast;
" *vomitoria*, L. and Ait. } Fl. March.

Mér. and de L. Dict. de M. Méd. iii. 591. See I. vomitoria. Linn. Veg. Mat. Med.; U. S. Disp. 1263, App.; Griffith, Med. Bot.; Ell. Sk. of Bot. of S. C. ii. 682. The leaves act as a powerful diuretic, and are employed in calculous, nephritic diseases, diabetes, gout, and small-pox. This plant is said also to act as a mild emetic. (Mér. and de L.) The Indians used the cold infusion, which was called the black drink, and which was said to enliven them, in the place of opium. The Creeks employed it, according to Elliott, at the opening of their councils, sending to the sea coast for a supply. They considered it one of their most powerful diuretics. (Bart. Coll.

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38.) The inhabitants in North Carolina purify brackish water by boiling in it cassina leaves.

Ilex dahoon, Walt. Also called cassina. Grows in swamps; it is said to possess properties similar to those of the I. cassina.

Ilex myrtifolia, Walt. Grows around ponds, in flat pine barrens, forty miles from Charleston.

Dr. Joseph Johnson, of Charleston, informs us that this is used to some extent in domestic practice in this State, as a diuretic in dropsy.

CUSCUTACEÆ.

Cuscuta Americana, Linn. Dr. Engleman, of St. Louis, has determined that we have not the C. Am. of Linn., and he has substituted three distinct species which are found in South Carolina, the C. compacta and cornuti of Choisey, and C. vulgivaga, Engl. Love vine. Grows in damp soils; collected in St. John's; Fl. June.

Mér. and de L. Dict. de M. Méd. ii. 527; Flora Méd. des Antilles, ii. 334; Shec. Flora Carol. 485.

This is said to be laxative and hydragogue. It imparts a yellow dye to cloth. The vine may be snapped in pieces, and the divisions will retain a separate existence, throwing out new tendrils, and re-attaching themselves to surrounding objects.

CONVOLVULACEÆ. (*The Bindweed Tribe.*)

An acrid milky juice is found in their roots, which is strongly purgative, this quality depending upon a peculiar resin, which is the active principle of the jalap, the scammony, &c. plants belonging to this order.

Ipomea nil, Pursh. *Convolvulus*, Sprengel. — Grows in dry soil; vic. of Cha'ston; St. John's; Fl. July.

Mér. and de L. Dict. de. M. Méd. iv. 409. The root was employed by the ancients as a purgative.

Ipomea panduratus, of late Bot. *Convolvulus*, Ell. Sk. — Wild potato vine. Found in dry pine barrens; collected in St. John's; Cha'ston district, where it grows abundantly.

Coxe, Am. Disp. 226; Barton's Collec. ii. 49; Ell. Bot. Med. Notes, i. 254; U. S. Disp. 269; Mér. and de L. Dict. de M. Méd.

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ii. 409; Lind. Nat. Syst. Bot. i. 252; Griffith's Med. Bot. 477. The root is diuretic, and in the form of infusion, is said to be very serviceable in calculous complaints. It is employed with great success by Dr. Harris, of New Jersey, in these and in other affections as a substitute for jalap and rhubarb; Dr. B. S. Barton says that an extract from one of our native species is little inferior to scammony.

Convolvulus macrorrhizus, Ell. } Vic. of Cha'ston; dry soils.
Ipomea of Michaux. }

U. S. Disp. 408; Ell. Bot. Med. Notes, i. 253; Mér. and de L. Dict. de M. Méd. ii. 406; Frost's Elems. Mat. Med. 140. This is thought to resemble jalap; De Candolle mentions the root as possessing purgative properties (Essai); and the expressed juice was said to be very active. Lind. Nat. Syst. Bot. 231; Flore Méd. des Antilles, ii. 288. Dr. Baldwin, however, was of the opinion that it possessed very little purgative power. It is said to contain a great deal of saccharine, with a considerable quantity of farinaceous, matter.

Convolvulus Jalapa.

It has been supposed, by some, that the officinal jalap may be obtained from plants growing within the limits of this State, but late researches have almost disproved it. See U. S. Disp.; Mér. and de L. Dict. de M. Méd.

Convolvulus battatus, Cult. Sweet potato.

This valuable plant is cultivated to a large extent in this State, and great use is made of the root as an article of food. It may, therefore, not be out of place to furnish some references to the various sources of information concerning it that have come in our way. A large quantity of sago called "Bowen's patent sago," was made in Georgia from the potato, particularly by Dr. Bancroft, near Savannah. The roots were scraped and grated, the pulp was then mashed through sieves, and the deposited flour collected and dried in pans either by fire or sun light. See Shec. Flora Carol. In this State, the root is used as an article of food prepared in various forms. They may be grated when raw and the pulp made into a pudding; they are sometimes eaten roasted, or boiled, in which state with wheat flour a very pleasant bread is made of them. On the plantations they furnish a large proportion of the food of animals. Mér. and de L. Dict. de M. Méd. Supplem. 1846, 205. See Depuy's Mémoire sur la culture de la patate. Bordeaux 1801; Lelieur de Ville-sur Arce,

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Mém. sur la culture du patate et du maïs, Paris. Gosse, Culture de la patate (Biblioth. Univ. de Genève, iii. 1818); Roberts' Note on the Culture of the Potato in the Mém. de la Soc. Roy. d'Agric. 1841; Southern Agriculturist, Charleston, *passim*.

Hydroleaceæ.

Hydrolea quadrivalvis. Immersed in ponds; collected in St. John's; Fl. July.

A bitter principle exists in this genus.

Lobeliaceæ.

Lindley states that all are dangerous or suspicious, in consequence of the excessive acridity of their milk.

Lobelia inflata, L. Indian tobacco; lobelia. Grows in Spartanburg and Abbeville dist's, and in Georgia; Fl. August.

Ell. Bot. Med. Notes, ii. 219; U. S. Disp. 434; Barton's Collec. 36, 56; Thacher's U. S. Disp. 267; Frost's Elems. Mat. Med. 83. This is one of the most valuable of our indigenous plants, well known as a nauseating diaphoretic and expectorant, possessing some narcotic power, and acting particularly on the bronchial mucous membranes. The infusion of the flowers promotes urine, diaphoresis, and the discharge of the lochia; used also in convulsions and palpitations of the heart. The infusion of the plant is stimulating to the throat, and is largely employed in asthma, as it occasions a copious secretion of saliva and of mucous fluid: "It, however, sometimes operates vehemently and speedily on the stomach." Lind. Nat. Syst. Bot. 237; Mér. and de L. Dict. de M. Méd. iv. 137; Chapman, Bigelow, and Barton spoke of it as a very active and dangerous plant. Supplem. to Mér. and de L. Dict. de M. Méd. 1846, 438; Dr. Noach, of Leipsic, says that it acts specifically on the "pneumogastric nervous system," and consequently possesses such a remarkable influence on the bronchial mucous membrane. In Geneva, also, it has acquired great reputation in spasmodic asthma. See the 12th Series of the Journ. de Chim. et de Pharmacie, i. 454. Dr. Elliotson cured two cases in four days with the alcoholic tincture in a sufficient quantity of distilled water. It has been found in Europe very useful in chronic bronchitis, aphony, and nervous affections of the bronchia, and in laryngitis and hooping cough. It has been administered in convulsions, tetanus, and dance of St. Guy. Mér. Supplem.; see also Lancet, Feb. 23, 1833. The Indians used it

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as tobacco, and this is a convenient way of administering it. Rufz, de empoisonnement pratiqué par les Nègres, 139; Sigmond on the properties of L. inflata and syphilitica, in Journ. de Chim. Méd. ix. 587, 1833; Glasgow Med. Journ. May, 1828; Bidault de Villiers, notice sur l'emploi du Lob. inflat. dans l'asthme et comme émétique, Nouv. Biblioth. Méd. v. 226. Lobeline has been extracted from it: Phil. Journ. Pharm. 1834. Dr. Procter found it also to contain an odorous volatile principle, a peculiar acid, lobelic, gum, resin, fixed oil, lignin, salts of lime, potassa, oxide of iron, &c.; Am. Journ. Pharm. ix. 106, xiii. i. It has been used as an enema in the same way as tobacco, and, in small doses, to produce relaxation of the os uteri. Eberle employed it with success in a case of strangulated hernia; he considers the root and inflated capsule the most powerful parts of the plant. Am. Journ. Med. Sc. xvii. 248. Some have doubted whether it produces its effects in the same way as tobacco. Dr. Cutler, who introduced it, says if the leaves be held in the mouth, they induce giddiness and pain in the head, with agitation and finally nausea. Both Dr. Randall and himself found it very efficacious in asthma, and employed it as a speedy expectorant in catarrh: the latter did not observe any narcotic effect ensue from it in moderate doses. In New England, the infusion has been used advantageously in leucorrhœa. The active principle is extracted by water and alcohol; x—xx grains of the powdered leaves will act as an emetic, a moiety less as an expectorant: ℥ij of the dried plant are added to one pint of diluted alcohol, of which one teaspoonful given to an adult, will generally bring on nausea and sometimes vomiting. This is the form in which it is usually prescribed in asthma, repeating it several times a-day, and desisting when headache or nausea ensues. Coxe, Am. Disp. 373; Big. Am. Med. Bot. i. 179; Cutler, Mem. Am. Acad. i. 484; Schœpf, 128; Mass. Report, vi.; Griffith's Med. Bot. 419; Raf. Med. Fl. ii. 22. Great use is made of the lobelia in this State; the steam and vegetable practitioners relying on it. Obstinate and very violent cases of flatulent colic, which the tinctures of cardamom, &c. fail to relieve, we know to be immediately dissipated by preparations of this plant. See Matson's Veg. Pract. and Howard's Imp. Syst. Bot. Med. 334.

Lobelia syphilitica, L. Mountains of Carolina and Georgia; Fl. September.

Bart. M. Bot.; Ell. Bot. Med. Notes, i. 268. In the Dém. Élém. de Bot. ii. 92, it is spoken of as an acrid and purgative plant. "Se

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guérissont de la vèrole en buvant decoction de cinq à six racines." Am. Herbal, 208. The Indians employed the decoction internally and topically for lues; they communicated their opinion of its virtues, in this respect, to Sir W. Johnson, who published it in the April No. of the Amæn. Acad.; Woodv. Med. Bot. 177; Kalm. L. C.; Linn. Veg. M. Med.; Thornton's Fam. Herbal, 727. Dr. Wood, in the U. S. Disp. 436, allows its emetic, diuretic, and cathartic properties, but denies it any value in syphilis. Dr. Chapman states that it is beneficial in dropsy. It is less powerful than the L. inflata, but more diuretic and diaphoretic; its diuretic effects are produced by free doses, purging or vomiting as it is augmented. From an analysis, by M. Boissel, it is found to contain a fatty butyraceous matter, sugar, mucilage, a volatile bitter substance, some salts, &c. Mér. and de L. Dict. de M. Méd. iv. 138; Des Bois de Rochefort, Mat. Méd. ii. 212; Dict. des Drogues, iii. 378. For analysis, see Journ. de Pharm. x. 623; Kalm. Description du Spécifique contre le Mal. Vénérien, in the Mém. de l'Acad. de Storck, xii. 1750.

Lobelia cardinalis, L. Cardinal flower. Grows in inundated soils, roots often immersed; vic. of Cha'ston; collected in St. John's, Charleston district; Richland, Prof. Gibbes; Fl. July.

Ell. Bot. Med. Notes, i. 268; Drayton's Views, 77; U. S. Disp. 436; Mér. and de L. Dict. de M. Méd. iv. 137; De Candolle's Essai, 189; Journ. de Pharm. iii. 470; Bart. M. Bot. ii. 186; Lind. Nat. Syst. Bot. 236; Griffith's Med. Bot. 421. This plant is used by the Indians as an anthelmintic, some say quite as efficient as the pink-root. (Spigel, Maryland.) Mérat says it is employed as a poison by the negroes at the Cape of Good Hope. It is well known for its beautiful scarlet flowers.

CINCHONACEÆ. (*The Coffee Tribe.*)

The grand features of this order are powerful febrifugal properties in the bark, and emetic in the root. Quinquina represents the first, and ipecacuanha the second.

Pinckneya pubens, Michx. Georgia bark. "Found from New River, South Carolina, along the sea coast to Florida." Vic. of Cha'ston. Bach. Named in honour of Gen. C. C. Pinckney; Fl. June.

Ell. Bot. Med. Notes, i. 267; Coxe, Am. Disp. 1830; U. S. Disp. 1289; Frost's Elems. Mat. Med. 519; Griffith, Med. Bot. 366. It

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was said by Michaux, in his N. Am. Sylvia, to be very useful in intermittent fever. Dr. Law, of Georgia, cured six out of seven cases with it. It did not distress the stomach, though to two patients ℥j was given at a dose; ʒj is the usual quantity in which it is administered. Dr. Farr detected a considerable amount of cinchonine in it, but was prevented from completing his examination. The attention of those residing where it may be found is invited to it as a substitute for quinine.

Mitchella repens, L. Mitchella; partridge berry. Vic. of Cha'ston; grows in shady swampy lands; collected in St. John's; Fl. May.

Ell. Bot. Med. Notes, 199. An infusion of the stems and leaves is used in dysuria; its diuretic powers, however, not being of any importance. The fruit is slightly acid, and is edible.

Cephalanthus occidentalis. Button bush. Grows along rivulets in damp soils; collected in St. John's. Specimens from Aiken. Vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, 187; Drayton's View, 62; Mér. and de L. Dict. de M. Méd. ii. 176; Shec. Flora Carol. 376. The decoction has been used in palsy. Elliott states that the inner bark of the root is frequently employed in obstinate coughs. Mérat notices it as an anti-venereal.

CAPRIFOLIACEÆ. (*The Honey-suckle Tribe.*)

Independently of the fragrance and beauty of these plants, astringent and purgative properties are possessed by some of them.

Triosteum perfoliatum, Linn. Fever root; wild ipecacuanha; wild coffee; horse gentian.

Bart. M. Bot. i. 59; Barton's Collec. 29; Ell. Bot. Med. Notes, i. 271; Big. Am. Med. Bot. i. 91; Raf. Med. Fl. i. 59; Griffith, Med. Bot. 353. This plant acts as a gentle but certain cathartic, particularly when combined with calomel, when its operation is almost as marked as that of jalap. The bark of the root is also emetic, the leaves and stalks proving less powerful. To produce its cathartic effect, Bigelow finds a somewhat larger dose than that of aloes or jalap necessary, though it is supposed to be influenced by age. Rafinesque says the leaves are also diaphoretic; and it is stated by Dr. Muhlenberg that the hard seeds, properly prepared, are a good

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substitute for coffee. Randall, in his communication to the Linnæan Society, asserts that water extracts its virtues best; but it is now recommended to be treated with alcohol. The dose as a purge is grs. x—xv of the extract, and xx—xxx of the powdered root.

Triostium angustifolium, Linn. Grows in South Carolina. Dr. Tinker's weed.

Griffith, Med. Bot. 353. Possesses properties similar to those of the T. perfoliatum.

Lonicera sempervirens, Ait. and T. and G.
Caprifolium, Ell. Sk.
} Woodbine. Grows in wet swamps; more abundant in lower country; vic. of C.; coll. in St. John's; Fl. May.

Mér. and de L. Dict. de M. Méd. iv. 143. The plant is not much used in medicine. The syrup made of the leaves is given in asthma, and in angina tonsillaris. The leaves and bark of the L. caprifolium of Linn. are styptic and acrid; the flowers diuretic; the latter, in decoction, calm the pain of colic (coliques ou tranchées) following childbirth.

Diervilla trifida, Mœnch. and T. and G.
" *Canadensis*, Ell. Sk. Muhl.
Lonicera diervilla, Linn.
} Bush honeysuckle. Grows in the mountains of S. C.; Fl. June.

Dém. Élém. de Bot. iii. 554. The leaves possess a narcotic principle, inducing nausea, and are recommended as a gargle in catarrhal angina. The decoction calms the pain attending the disease; taken largely, it causes stupor and catalepsy.

Sambucus Canadensis, Linn. Elder. Grows abundantly in South Carolina along fences, and in rich, damp soils; diffused; Fl. June.

Lind. Nat. Syst. Bot. 248; Bell's Pract. Dict. 404; Drayton's View, 55; Le. Mat. Med. ii. 325; U. S. Disp. 625; Royle, Mat. Med. 428; Cullen, Mat. Med. ii. 534; Mér. and de L. Dict. de M. Méd. vi. 196; Griffith, Med. Bot. 354. "The leaves are fetid, emetic, and a drastic purgative." The plant acting in the same way as the European species, the S. nigra; the leaf buds also operating as a powerful purgative. The flowers are excitant and sudorific, and are used in the form of an ointment as a discutient. The inner bark is

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a hydragogue cathartic and emetic, acting well in dropsy, and as an alterative in various chronic diseases. The purgation, which results from its employment, is sometimes, however, too severe. The berries are diaphoretic and aperient, and are used as a remedy in rheumatic gout and syphilitic affections; the juice of these, diluted with water, furnishes a cooling and valuable laxative drink. This plant is employed to some extent in domestic practice in this State, for the purposes severally referred to above.

Compositæ.

These embrace four orders, all of which are distinguished by bitterness, which, in the different sections, is variously combined,—in the order Asteraceæ, it assumes a particular character, being united with a resinous principle; in the Cynaraceæ, this bitterness depends upon the mixture of extractive with a gum, which is sometimes yielded in great abundance; the Chichofaceæ are characterized by a juice, which is milky, bitter, astringent, and narcotic.

Vernonia angustifolia, Mx. Grows in the pine lands in lower country; collected in St. John's; Fl. July.

The root is used by the negroes in South Carolina as a remedy for the bite of serpents. It is also considered by them to be aphrodisiac.

Liatris squarrosa, W. Grows in pine lands; collected in St. John's; Richland dist.; vic. of Cha'ston.

U. S. Disp. 1273; Journ. de Chim. Méd. v. 419. "Y sont usitées contre la morsure des serpens." Mér. and de L. Dict. de M. Méd. iv. 97.

Liatris scariosa, W. Grows in pine lands; vic. of Cha'ston; Fl. July.

U. S. Disp. 1273, Appendix. It is employed in gonorrhœa, and as a gargle in sore throat.

Liatris spicata, W. Grows in wet pine lands; collected in St. John's, Charleston district; vic. of Cha'ston; Fl. July.

U. S. Disp. 1272. One of the "rattlesnake's masters." Dr. Barton said that all the tuberous-rooted Liatres were active plants.

Eupatorium perfoliatum, Linn. Thoroughwort; boneset. Grows

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in damp soils; diffused; Richland dist.; common in low country; Fl. July.

Chap. Therap. and Mat. Med. i. 387, and ii. 435; Bell's Pract. Dict. 197; Ell. Bot. Med. Notes, ii. 303; Pe. Mat. Med. and Therap. 389; Frost's Elems. Mat. Med. 216; Eberle, Mat. Med. ii. 216; Royle, Mat. Med. 445; U. S. Disp. 319; Ed. and Vav. Mat. Méd. 197; Big. Am. Med. Bot. i. 34; Thacher's Am. Disp. 217; Am. Med. Record, iii. 331; Barton's Essay to Mat. Med. 28; Ball. and Gar. Mat. Med. 315; Schœpf, Mat. Med. 121; Guthrie, in Annal. of Med. iii. 403; Anderson's Inaug. Thesis, New York; Mér. and de L. Dict. de M. Méd. iii. 177; Coxe, Am. Disp. 271; Shec. Flora Carol. 549; Bart. M. Bot. ii. 133; Lind. Nat. Syst. Bot. 253. A warm infusion of this plant is emetic, sudorific, and diaphoretic; employed cold as a tonic and febrifuge. It has been repeatedly prescribed with advantage in rheumatism, typhoid pneumonia, catarrhs, dropsy, and in the influenza which prevailed at the North, and which was described by Dr. Rush: he also used it with great success in the yellow fever of 1798; and Dr. Chapman found it one of the most effectual remedies in the epidemic called the "break bone fever." Graves, of Dublin, has made much use of it in the ship, or typhus fever. See note to Graves and Gerhard, Am. ed. This plant is extensively employed among the negroes on the plantations in this State as a tonic and diaphoretic in colds and fevers, and in the typhoid pneumonia so prevalent among them. In a few cases, which have come under our observation, we have found this and the seneka snake root (Polygala senega) convenient and useful prescriptions in this disease; the latter, with tartar emetic solution, to promote expectoration; and the former, with flaxseed tea, as a stimulant diaphoretic, combining them with spirits of turpentine when it has assumed the typhoid form. From its action on the capillaries, it has been recommended in chronic cutaneous diseases. Barton said it possessed no power in this respect; but in the hands of Dr. Zollickoffer it has proved eminently successful in tinea capitis, given in combination with cremor tartar. See Griffith, Med. Bot. 391. In the Supplem. to the Dict. de M. Méd., 1846, it is reported to have been given with benefit in asthma. Echo du Monde Savant, 16; Janvier, 1845. The infusion of the roots and leaves is usually preferred, of which ℥i—iii may be taken several times a-day; of the root, in powder, the dose is gr. xxx.

Eupatorium purpureum, L. Purple thoroughwort; gravel root.

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We have a specimen from Abbeville district from Mr. Reed; Richland dist.; collected in St. John's, Charleston district; grows in damp or inundated soils; vic. of Cha'ston; Fl. July.

U. S. Disp. 319; Mér. and de L. Dict. de M. Méd. iii. 177. It is said to operate as a diuretic; and it is one of the popular remedies for calculus, probably possessing properties somewhat similar to those of the Eup. perf.

Eupatorium teucrifolium, W. and T. and G.
" *verbenæfolium*, Ell. Sk.
} Grows in damp soils; coll. in St. John's; Fl. Aug.

Michaux, Flora Amer. ii. 98; U. S. Disp. 319. This is tonic, diaphoretic, diuretic, and aperient. A popular remedy in intermittents. See the observations of Dr. Jones, of Georgia. It may be substituted in some cases for the Eup. perfol.

Eupatorium rotundifolium, L. Grows in dry pine barrens; collected in St. John's, Berkley; vic. Cha'ston; Richland Dist.; Fl. July and Aug.

Mér. and de L. Dict. de M. Méd. iii. 177; Journ. Gén. de Méd. xxxvi. 111. The infusion is said to be useful in consumption. See Dr. Mitchell's letter.

Aster tortifolius, Mx. Mouse ear. Vic. Cha'ston; grows in dry pine barrens; collected in St. John's.

This plant has some reputation in domestic practice in this State as a diuretic. We have noticed the summit generally covered with little insects.

Aster cordifolium. Grows in rich lands; Fl. Aug.

Griffith, Med. Bot. 387. It possesses antispasmodic properties.

Erigeron Canadense, L. Colt's tail; flea bane. Common in damp sandy soils; collected in St. John's; vic. Cha'ston; Richland, Gibbes; Fl. July.

Royle, Mat. Med. 447; Matson's Veg. Pract. 368; U. S. Disp. 316; Mér. and de L. Dict. de M. Méd. iii. 140; Journ. de Bot. 448; et des Pharm. 214; Coxe, Am. Disp. 268; Griffith, Med. Bot. 395; Dém. Élém. de Bot. 200; Raf. Med. Fl.

This is a stimulant tonic, diuretic, and astringent, employed with marked success in dropsy and diarrhœa; it is much used by the vegetable practitioners in the latter disease; they give a teacupful of the

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infusion of the herb in hot water every two hours; when chewed, it relieves cholera morbus. Dr. Depuz found it useful in these diseases. See his observations, quoted in the U. S. Disp. 316. He found tannin, gallic acid, and volatile oil among its constituents, from whence its beneficial action in the diseases specified may be inferred. An infusion of the powdered flowers is antispasmodic, and is employed in hysterical and nervous affections. The oil obtained from the plant possesses extraordinary styptic properties. The dose of the powder is grs. xxx—ʒj.

Erigeron Philadelphicum, L. Non. Ell. Common in pastures; collected in St. John's; vic. of Cha'ston; Fl. May.

Lind. Nat. Syst. Bot. 253; Shec. Flora Carol. 537; Royle, Mat. Med. 447; Bart. M. Bot. i. 234; U. S. Disp. 317. It is diuretic, without being offensive to the stomach. Fr. Elems. 81. In great repute as a remedy in calculus, and in nephritic diseases. It was a favourite prescription in Philadelphia, in dropsy, and Dr. Wistar recommends it in hydrothorax complicated with gout.

Erigeron strigosum, Muhl. Grows in sandy soils; vic. Cha'ston.

Griffith, Med. Bot. 396. It is similar in properties to the E. annuum, a favourite diuretic in the dysuria of children—used by Physick and Dewees in painful micturition dependent on nephritis. This also yields a styptic oil similar to that afforded by the E. Canadense.

Erigeron pusilum. Grows in pastures and cultivated soils; collected in St. John's; Fl. June.

U. S. Disp. 316.

Solidago odora, Ait. Golden rod. Grows in rich soils, among the mountains, and in the upper districts, acc. to Ell. Collected in St. John's also; Fl. Oct.

Mér. and de L. Dict. de M. Méd. 437; U. S. Disp. 679; Big. Am. Med. Bot. i. 189. An aromatic, moderately stimulant, and carminative plant, and like other substances of the same class, diaphoretic in warm infusion. It is used to allay pain from flatulence, lessen nausea, and cover the taste, or correct the operation, of irritating or unpleasant medicines. Mérat states that the infusion is also employed as an astringent in dysentery, and in ulceration of the intestines. Journ. Gén. de Méd. xxxvi. 3. When the leaves are subjected to distillation, a very aromatic volatile oil collects, and an essence may be made by dissolving this in proof spirits. This will also stop

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vomiting, and correct the taste of medicines, even laudanum and castor oil; Griffith, Med. Bot. 397, observes that it is valuable in allaying the pain from headache, externally applied. It is much used in the Eastern States, and Bigelow thinks it will entirely supplant more expensive articles. According to Pursh, the dried flowers are a pleasant and wholesome substitute for tea.

Solidago sempervirens, L. Narrow-leaf golden rod. Grows in wet lands; vic. of Cha'ston; Fl. September.

Mér. and de L. Dict. de M. Méd. vi. 437. Very efficacious in the cure of wounds.

Baccharis halimifolia, L. Sea myrtle; consumption weed. Grows along the sea coast; collected in St. John's, where it is found in abundance; vic. of Cha'ston; Fl. October.

Shec. Flora Carol. 256. This plant is of undoubted value, and of very general use in popular practice in South Carolina, as a palliative and demulcent in consumption and cough; we have frequently seen it used with advantage, and have often heard those employing it confess the benefit derived from it. A strong decoction of the root may be drunk several times a day. It is slightly mucilaginous to the taste. No analysis has yet been made, so far as we can learn. Shecut states that the "bark is said to exude a gum so much resembling honey, as to attract bees in great numbers." This, like many others of our indigenous plants, possessed of unequivocal utility, is unnoticed by the dispensatories and other works.

Pterocaulon pycnostachyum. Grows abundantly in dry pine barrens; collected in St. John's, Berkley; Fl. July.

Ell. Bot. Med. Notes, ii. 324. Much use is made of this plant in St. John's, Berkley, as an alterative; it is supposed to be possessed of decided value. It is well known as the blackroot of the negroes. A decoction of the root is given several times a day.

Xanthium strumarium, L. Burr; burdock. Grows abundantly in cultivated lands; collected in St. John's, Berkley; vic. of Cha's-ton; Richland, Gibbes; Fl. August.

Mér. and de L. Dict. de M. Méd. vi. 970; Dioscorides, lib. iv. 133. It has been used in scrofula. The only works in which we have been able to find any account of it are the Dém. Élém. de Bot. iii. 91, where the leaves are said to be astringent, the seeds

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diuretic, and the expressed juice useful in affections of the bladder, and as an auxiliary remedy in the treatment of ringworm. Also in Linnæus, Vegetable Mat. Med. 172, according to which, it is found beneficial in herpes, and in erysipelas; hence, we may infer that it has at any rate some power as an alterative. Its leaves afford a yellow dye. No use is made of it in South Carolina, so far as we can ascertain. The plant is considered a nuisance by farmers, as the burs get entangled in the wool of sheep, from which they are with difficulty removed.

Verbesina Virginica, Linn. Grows along fences; collected in St. John's; Richland district; Fl. July.

Griffith, Med. Bot. 380. The root, in decoction, is said to be a powerful sudorific.

Ambrosia artemisiæfolia, W. Grows in cultivated lands and pastures; collected in St. John's, Charleston district.

Mér. and de L. Dict. de M. Méd. i. 227.

Ambrosia trifida, Linn.

Griffith, Med. Bot. 387. "A plant has been noticed by Dr. Robertson (Am. Journ. Med. Sci. xii. 382, new series), which appears to be this, which is highly beneficial in arresting excessive salivation."

Eclipta erecta, Linn. T. and Gray.
" *procumbens*, Ell. Sk.
} Collected in St. John's, dry soils; vic. Cha'ston; Fl. July.

Griffith, Med. Bot. 387. It is said to stain the hair black.

Helianthus tuberosus. Artichoke. Cultivated in South Carolina.

Mér. and de L. Dict. de M. Méd. Supplem. 1846, 351. The root washed in water, and given to animals, will, it is said, produce meteorism (météorisations mortelles). Nouv. Biblioth. Méd. viii. 426.

Anthemis. See Maruta.

Maruta cotula, D.C., T. and G.
Anthemis, Ell. Sk.
} Wild chamomile. Grows in dry soils; collected in St. John's, Berkley; vic. of Cha'ston; Fl. July.

Bergii, Mat. Med. i. 741; Mér. and de L. Dict. de M. Méd. i. 741; Ed. and Vav. Mat. Méd. 263; U. S. Disp. 278; Shec. Flora

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Carol. 171; Griffith, Med. Bot. 398. A tonic, diaphoretic, and emetic; resembling chamomile in its effects, to which it is fully equal, but more nauseous. It is one of our most useful domestic remedies, and is given in numerous diseases. It is also possessed of some power as an antispasmodic. Mérat mentions it as a substitute for assafetida, that it is employed as an antihysteric, and is recommended in rebellious bilious fever. Dr. Ashby speaks of it as a prompt and powerful vesicant, when bruised and applied to the surface as a poultice. Barton and Rafinesque had conveyed a different impression concerning it. Dr. Ashby adds that, unlike blisters caused by other vegetable irritants, the vesications readily heal. Journ. Phil. Coll. Pharm.

Achillea millefolium, L. Milfoil; yarrow. Grows in damp rich soils; collected in St. John's, Berkley; vic. of Cha'ston; Fl. July.

U. S. Disp. 1225, Appendix; Le. Mat. Med. ii. 108; Ed. and Vav. Mat. Méd. 267; Bergii, Mat. Med. 738; Hoffmann, "De præstantia Remed. Domest.;" Matson's Veg. Pract. 299; Mér. and de L. Dict. de Mat. Méd. i. 22; Shec. Flora Carol. 91; Lind. Nat. Syst. Bot. 253; Woodv. Med. Bot. 180. This is an astringent employed in the suppression of hemorrhages. The Highlanders made an ointment of it to dry up wounds. Linnæus informs us that the inhabitants of Dalecarnia mix it with ale, in place of hops, and think it imparts to the liquor an intoxicating quality. Lightfoot's Flora Scotica, 486; Thornton's Fam. Herb. A tablespoonful of the expressed juice will arrest spitting of blood; and it is also valuable as an astringent in dysentery. Dr. Buckwald says he experienced great benefit from the plant in the bleeding piles. Stahl boasted of it as a specific; and the great Haller asserts that the infusion, taken inwardly, with the outward application of the leaves, cut fine, will dissipate dreadful wounds, cicatrizing them rapidly. Stahl, Diss. de Thérap.; Hoffmann, "De Præstant. Remed." 18; Linnæus, Flora Suec. 299. Besides the astringent, it possesses a mild antispasmodic tonic power, which renders it beneficial in hysterical affections, and in leucorrhœa. The flowers are stronger than the leaves, being somewhat similar to chamomile, and yielding, by distillation, a small quantity of essential oil, of a blue colour. Dr. Grew says it resembles contrayerva in its effects. Mér. and de L. Dict. de M. Méd. Supplem. 1846, p. 5. See Analysis in Bull. des Sci. Méd. de Férus, xxii. 119, and xxvi. 253; Soc. de Méd. Botanique de Londres, 1830. It is asserted that this plant has a

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marked tonic power upon the bladder; it is employed in debility of that organ, and is especially useful in correcting the involuntary discharge of urine in children. A handful of the leaves is infused in a pint of boiling water, and ℥iii may be taken by an adult three times a-day. See Culverwell's treatment. This plant might be found of great service by practitioners residing in the country.

Leucanthemum vulgare, Lam. and T. and G. *Chrysanthemum leucanthemum*, L.	Ox-eyed daisy; white weed. Nat. in upper districts; coll. in St. John's, Charleston dist.; vic. of Cha'ston; Fl. July.

Shec. Flora Carol. 394; Mér. and de L. Dict. de M. Méd. ii. 271; Nouv. Journ. de Méd. v. 208; Griffith, Med. Bot. 387. It is vulnerary and detergent. Dém. Élém. de Bot. iii. 212. In Siberia, according to Dr. Rehmann, they employ the plant in leucorrhœa. It is not used in this country. Nouv. Journ. de Méd. v. 208. Contraine states that it is a certain safeguard against fleas, destroying, or driving them off in a short time. Bull. Acad. Brux. viii. 234.

Antennaria Margaritacea, R. B. T. and G. *Gnaphalium margaritaceum*, L. Ell. Sk.	Cat-weed; life everlasting. Grows among the mountains of S. C.; vic. of Cha'ston. Bach. Fl. Sept.

U. S. Disp. 1258. It is employed in popular practice in diseases of the chest and bowels, and is externally applied as a fomentation to wounds and bruises. Schœpf says it possesses anodyne properties.

Gnaphalium polycephalum, Mx. Cat-foot. Diffused in upper and lower country. Grows in pastures; collected in St. John's; vic. of Cha'ston; Fl. August.

U. S. Disp. 1258; Matson's Veg. Pract. 275. "It probably possesses little medicinal virtue." A popular remedy in hemorrhagic affections, and as a fomentation in bruises and languid tumours. The infusion is employed by the vegetable practitioners in fever, influenza, fluor albus, and consumption. Acting probably as a warm sudorific.

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Arnica nudicaulis, Ell. Grows in damp, pine barrens, vic. of Cha'ston, Bach; Richland, Gibbes.

Griffith, Med. Bot. 409. It is supposed that this may be used as a substitute for the European species, the A. montana, which is well known as a powerful plant, possessing stimulant properties, directed with peculiar energy to the brain and nervous system. It also produces an emetic and cathartic effect, and is much used by the Germans in paralysis, amaurosis, and other nervous diseases.

Senecio aureus, Ell. Sk. Ragwort. Mountains of S. C.; Fl. July.

U. S. Disp. 1295. It is said by Schœpf to have been a favourite vulnerary with the Indians; the juice of the plant in honey, or the seeds, in substance, are employed.

Cnicus benedictus, T. and G.
Centaurea benedicta, L.
} Nat. along the sea-coast, near Beaufort; coll. in St. John's, vic. of Cha'ston; Fl. August.

Trous. et Pid. Traité de Thérap. &c. i. 253; Pe. Mat. Med. ii. 408; Ed. and Vav. Mat. Méd. 179; U. S. Disp. 196; Le. Mat. Med. i. 202; Woodv. Med. Bot. 34, i. 14; Ann. de Thérap. 1843, 206; Bergii, Mat. Med. i. 747; Mér. and de L. Dict. de M. Méd. ii. 171; Thompson's Steam Pract.

The plant is emetic, tonic, and febrifugal; ʒj of the powder of the flowers in wine, with a decoction of the leaves, is said to be invaluable in anorexia, weak stomach, impaired by irregularities of diet, atony, jaundice, and tertian fevers; Thorn. Fam. Herbal, 725; Dém. Élém. de Bot. iii. 115. It is used, also, in chronic diarrhœa and in gout. Woodv. loc. cit. A decoction "possesses marked tonic properties;" a large dose acting as an emetic, and occasioning a plentiful discharge from the cutaneous surface. It is employed as a febrifuge in dyspepsia, pleurisy, and chronic peripneumony. Woodville says the extract is strongly recommended in the catarrh of children; the seeds are very bitter, and may be used with the same intention as the leaves. Rectified spirits extract the virtues of the plant. The watery extract appears, also, to possess the emetic principle. By keeping, a salt is produced upon the surface resembling nitre. See Hist. des Sc. de Berlin, 79; and Duncan's Edinb. New Dispensatory.

Cynara scolymus. Jerusalem artichoke; Ex. cult.

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We call attention to this plant, as it grows luxuriantly in this State.

Mér. and de L. Dict. de M. Méd. Supplem. 1846, 234. "Dr. Montaine, of Lyons, assures us," remarks Mérat, "that each year he treats, with success, a large number of fever patients, with the extract of the leaves, in the form of pills." Great use is made of it on the plantations in this State, as a tonic and diuretic in dropsy; the leaves are steeped in rum, of which a wineglassful is administered three times a-day; among the negroes we have frequently seen it prescribed with advantage in this way. It is employed also in jaundice, expressed juice, or the infusion, being used; of the former, two or three spoonfuls may be given; large doses purge. We also use the corollas for curdling milk. The modern Arabians consider the root aperient, and class the gum among their emetics. Lind. Nat. Syst. Bot. 284; Ainslie, Mat. Med. Ind. i. 22. Dr. Copeman, Pharmaceutist to the Hospital at Norfolk, makes a favourable report on the value of the leaves, in the form of tincture and extract, in rheumatism. See London Med. Gazette, 1833; from extracts in Gazette Méd. de Paris, 13 Avril, 1833. Dr. Barry first employed the leaves in chronic jaundice, and Perroton, of Lyons, also administered it frequently in the same disease. Revue Méd., Nov. 1845.

Taraxacum dens-leonis, Desf. T. and Gray. *Leontodon Taraxacum*, Ell. Sk.	Dandelion. Collected in St. John's, Berkley. We have observed it growing in the streets of Charleston and New York.

Watson's Pract. Physic, 39; Ed. and Vav. Mat. Méd. 184; Wilson Philip, Diss. Abdom. Viscera; Bell's Pract. Dict. M. M. 445; Royle, Mat. Med. 453; Pe. Mat. Med. ii. 401; U. S. Disp. 706; Le. Mat. Med. i. 396; Brande, Dict. Mat. Med. and Pharm. v. 632; Woodv. Med. Bot. 39, t. 16; De Cand. Prodromus, vii. 45; Ball. Gar. M. M. 319; Bergii, Mat. Med. ii. 687; Mér. and de L. Dict. de Mat. Méd. iv. 87; English Physician, by Nich. Culpepper, Gent., Student in Physic and Astrology, p. 109.

The root is deobstruent, cathartic, and diuretic. "Good in obstructions of the viscera, scirrhosities of the liver, stone in the gall bladder, ascites, jaundice, &c." A decoction of the root is also useful in impetigo and itch; the doses are ʒj of the juice, and ℥ij of the de-

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coction. Thornton's Fam. Herbal, 677; Dém. Élém. de Botanique, iii. 169. At Gottingen, the roots are washed and substituted for coffee, by the poorer inhabitants; they say the difference between this and the imported article can scarcely be distinguished. Murray's Apparat. Méd. Withering mentions that, when a swarm of locusts destroyed vegetation on the Isle of Minorca, the inhabitants subsisted on this plant. The great Boerhaave entertained a favourable opinion of it; and Bergius found it useful in derangement of the biliary apparatus, from gall stones, &c. Mat. Medica, Delius, de taraxaco præsertim aquæ, &c. Dr. Mendelstaed cured black jaundice (l'ictère noir), with it. Van Swieten, in his Comment., Zimmermann and Störck spoke of it in jaundice and hypochondriacal affections. Later writers have confirmed these opinions expressed by those living at an earlier period. Dr. Wood, in the U. S. Disp., says that his experience in derangements of the biliary secretions has been decidedly in its favour, it being particularly valuable in chronic hepatitis. Eberle recommends it in chronic cases of infantile jaundice; "Diseases of Children." Griffith, in his Med. Bot. 415, alludes to its use in deranged conditions of the digestive organs, connected with an abnormal state of the liver, and in dropsical effusions arising from the same cause. In habitual costiveness, dependent on a want of due biliary secretion, it acts with peculiar benefit; and, as an adjuvant to more active remedies, where the liver is indurated, it has been prescribed with advantage. It has been employed, likewise, in affections of the spleen, uterine obstructions, chronic cutaneous disorders, &c. When its diuretic effect is desired, it is advised that it be given in combination with supertartrate of potash. This plant is supposed to be possessed of valuable properties as an alterative, and much use is made of it among patients of a strumous diathesis, and those affected with diseases of the skin. We have seen it employed to some extent in New York for these purposes, constituting an important ingredient of diet drinks. It may be easily obtained, and might be found of much service to practitioners residing in the country. The young shoots are eaten as salad. It has been observed that the flowers possess a certain degree of sensibility; for, when under the influence of the direct rays of the sun on a summer morning, an evident motion of the filaments is perceptible. See MSS. Lect. of Dr. Hope. The plant should be gathered in the summer, and early in the autumn. An analysis of it is found to contain gum, gluten, albumen, an odorous principle, extractive, caoutchouc, a peculiar bitter crystallizable principle, some salts, &c. The decoction made with

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ʒij of the root of a whole plant to two pints of water, boiled to one half, may be given in doses of a wineglassful; of the extract, the dose is grs. x—ʒss; the latter should be of a brown colour, and entirely soluble in water.

Lactuca elongata, Muhl. " *longifolia*, Mx. } Wild lettuce. Damp soils; coll. in Charleston dist.; Fl. June.

U. S. Disp. 421; Ann. de Thérap. ann. 1843; Woodv. Med. Bot. 75–31; see L. virosa, Mér. and de L. Dict. de M. Méd. iv. 10.

It is said to act as an anodyne, and to produce discharge by the kidneys and skin, being similar in its effects to the L. virosa of Europe; according to others, it is destitute of narcotic power; see M. Aubergier's experiments.

Nabalus fraseri, D. C. and T. and G. *Prenanthes alba*, Ell. Sk. } Gall of the earth. Grows in damp pine lands; coll. in St. John's; Richland, Prof. Gibbes; vic. of Cha'ston.

The root is excessively bitter; it is used in domestic practice in this State as a tonic; we would invite further examination.

Sonchus oleraceus, L. Common sow thistle. Diffused; coll. in St. John's; vic. Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 439. It is said to be useful in stagnation of the portal circulation; according to some, it increases the secretion of milk. Fl. Scotica, 428; Dém. Élém. de Bot. iii. 177. The tender leaves are boiled and eaten in some countries as greens; they are of a cooling nature, are applied outwardly as an emollient cataplasm, and are found serviceable in inflammatory swellings, carbuncle, &c. The flowers open at 6 A. M. and close at 12 M.

PLANTAGINACEÆ. (*The Rib Grass Tribe.*)

The herbage slightly bitter and astringent.

Plantago major. Plantain. Nat. Coll. in St. John's, Berkley, near the Santee river; we have also observed it in the streets of Charleston; Richland district; Fl. June.

Bergii, Mat. Med. i. 71; Le. Mat. Med. ii. 232; U. S. Disp. 1289, App.; Ed. and Vav. Mat. Méd. 135; Mér. and de L. Dict. de M. Méd. v. 358; Journ. Univ. des Sc. Méd. xix. 127.

The leaves, when chewed, tinge the saliva red. This plant was

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a popular vulnerary and astringent, once in great repute. It was also highly valued for its efficacy in fevers. Bergius, however, tested it with unfavourable results. We are informed that "the seeds in milk will stop a dysentery." Boerhaave states, from his own experience, that the fresh leaves applied to the feet will ease the pain and fatigue occasioned by walking, and that the whole plant was esteemed useful in healing and consolidating ulcers and recent wounds, and as a dressing for blisters and sores. A decoction of the leaves in milk was employed as a gargle in inflammation of the fauces, and a collyrium was made with a decoction of the seeds. Thornton's Fam. Herb.; Woodv. Med. Bot.; Dém. Élém. de Bot. 85; Milne, Ind. Bot. 102. It was looked upon as a panacea by the ancients; see Pliny, l. 26, c. 11; Celsus, lib. iii. c. 22; Scultz, Mat. Med. i. 112; Boyle de Util. Phil. Nat. ii. 150; Petzolat, Eph. Nat. cur. cent. vii. Obs. x. 25. It was formerly carried as an amulet. "En fin," remarks Mérat, "on a porté la racine des plantains en amulet pour guérir ou prévenir une multitude des maladies." See the Dict. de M. Méd. Supplem. 1846, 567; Rev. Méd. Juin, 1837, 399. Dr. Perret communicated to the Soc. des Sc. Méd. de Lausanne a report on the beneficial effects derived from the root in various maladies; Journ. Univ. des Sc. Méd. xix. 127; and Desbois says he has seen the good effect resulting from the use of the leaves in scrofulous ulcers and in indolent tumours. Mat. Med. ii. 254. The authors of the U. S. Disp., however, refer to it as a plant of feeble power, allowing it to be refrigerant, diuretic, deobstruent, and somewhat astringent. A chemical analysis would be desirable, as it is probable that a narcotic principle exists in it.

Plantago lanceolata, Ph. Ribwort; snake plantain. Grows around Charleston and Savannah; coll. in damp meadows in St. John's, Berkley; Fl. July.

Fl. Scotica, ii. 1089. It possesses properties very similar to the above. The Highlanders attribute great virtue to the leaves as an ointment for healing up fresh wounds.

PLUMBAGINACEÆ. (*The Leadwort Tribe.*)

This order embraces plants possessed of very opposite qualities; part are tonic and astringent, and part acrid and caustic in the highest degree.

Statice limonium, Torrey. } Marsh rosemary. Grows
" *Caroliniana*, Walt. Fl. Carol. } on the sea shore; Fl. Sept.

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U. S. Disp. 680; Big. Am. Med. Bot. 251; Coxe, Am. Disp. 568. This is one of our "most intense and powerful astringents;" much used in New England for all the purposes to which catechu and kino are applied. A large dose acts as an emetic, and in smaller quantities as a powerful expectorant; it also possesses considerable antiseptic power. Its chief popular application is to aphthous and ulcerative affections of the mouth and fauces. Dr. Balies, of Massachusetts, found it highly serviceable in cynanche maligna: he used a decoction of the roots both internally and locally, and these beneficial results have been corroborated by others. It is also given with advantage in S. anginosa, and in aphthous fever attendant on dysentery, where bark is inadmissible. From the experiments of Prof. V. Mott, in an inaugural thesis spoken favourably of by Dr. Bigelow, it proved serviceable in chronic dysentery after the inflammatory symptoms had subsided. From his observations, as well as from those of Dr. Edward Parrish, the cold infusion was the best form. Dr. P. found it to contain twelve per cent. of tannin, also gum, extract, alkali, &c., but no gallic acid. Am. Journ. Pharm. xiv. 116; Griffith, Med. Bot. 525; Am. Journ. by John Stearnes, 281; see S. limonium; Mér. and de L. Dict. de M. Méd. vi. 524. It was regarded as an astringent in the time of Pliny; lib. xxvi. 28.

Ehretiaceæ.

Heliotropium Indicum. Turnsole. Michaux found it at the Eutaw battle ground, St. John's, Berkley, and Mr. Oemler in the Dutch Fork, in Richland district; Fl. July.

Ell. Bot.; Mér. and de L. Dict. de M. Méd. iii. 462. It has been employed in the cure of headache. See Walkenaer, "Voyage," xii. 469. It is used in Guinea and in India; the juice is applied to eruptive surfaces, ophthalmias, &c. Ainslie, Mat. Med. Ind. ii. 414. Rottboll, after Sprengel, says it is a vulnerary employed in some countries to arrest flooding. Hist. de la Méd. iv. 467; Abbet, Guyane, i. 117.

Boraginaceæ. (*The Borage Tribe.*)

Characterized by soft, mucilaginous, and emollient properties. Some are said to contain nitre: a proof of which is shown by their frequent decrepitation when thrown on the fire. (Lindley.)

Cynoglossum amplexicaule, Mx. " *Virginicum*, L.	Hound tongue. Grows in shady spots. Richland and Charleston districts; Fl. June.

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Shec. Flora Carol. 489. According to Clayton, the root is astringent, and is administered in diarrhœa. The leaves intoxicate when smoked as tobacco. According to Griffith, it is stated that the root may be used as a substitute for comfrey; Med. Bot. 500.

LAMIACEÆ OR LABIATÆ. (*The Mint Tribe.*)

These do not contain a single unwholesome, or even suspicious species; their tonic, cordial, and stomachic qualities are due, according to Lindley, to the presence of an aromatic volatile oil, and a bitter principle.

Mentha tenuis. American Spearmint; Cult.

It is an antispasmodic, and is said, by Culpepper, to be also an aphrodisiac. English Physician, by Nich. Culpepper, Gent., Student of Physic and Astrology, p. 214. It is considered, by the steam and vegetable practitioners, a specific in allaying nausea and vomiting. Thompson's Practice, and Matson's Veg. Pract. 286.

Lycopus Europeus, Eat. M.
" *angustifolius* and
" *sinuatus*, Ell. Sk.
} Water horehound. Nat. in damp soils; collected in St. John's; vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, 25; U. S. Disp. 437; Mér. and de L. Dict. de M. Méd. ii. 168; Matson's Veg. Pract. 250; Milne, Ind. Bot. 84. This is reputed to give an indelible stain to whatever it touches. Hoffmann says the gipsies use it to disguise themselves. It has been highly spoken of on the Continent of Europe in intermittent fevers; Prof. Re, of Turin, declares that, in doses of ʒij of the dried plant, the most obstinate intermittents were removed. Broffiero says it is astringent. See Letter (in French) on the properties of L. Europeus in allaying fever. Dr. Broffiero's Note in the Repertorio Medico-Chirurg. 832, and Griffith's Med. Bot. 505. It is employed by the vegetable practitioners in diarrhœa, atonic conditions of the digestive organs, and as a cleansing wash for sores. We would invite attention to this and the following, which are easily obtained.

Lycopus Virginicus, Mich. Bugle weed; Virginian Lycopus. Diffused; collected in St. John's, Berkley; vic. of Cha'ston; Richland district; Fl. August.

Mér. and de L. Dict. de M. Méd. ii. 168. It has been administered internally with great success in hemorrhage and hæmoptysis; and in phthisis it lessens the force of the circulation. In the dis-

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cases first mentioned, Dr. Silliman verifies the results obtained by Linstey, 20 persons having tried it with benefit, in internal hemorrhage. Drs. Porter and Winkoop also report cases in which they have employed it with success. See Journ. des. Sc. Méd. 154. According to Dr. Ives, of New Haven, it is a mild narcotic. Drs. Pendleton and Rogers, of New York, obtained favourable effects from it in incipient phthisis, and hemorrhage from the lungs. See New York Med. and Phys. Journ. i. 179; U. S. Disp. 436; Raf. Med. Fl. 11. As a direct sedative, it is useful in diminishing the frequency of the pulse, quieting irritation, and allaying cough. Practitioners, observes Griffith (Med. Bot. 505), are unanimous in declaring that it is an important addition to the Mat. Med. It appears to act like digitalis in abating the frequency of the pulse, its use, however, not being attended with the disagreeable symptoms sometimes accompanying the employment of the latter. An infusion may be given *ad libitum*, made with one ounce of the herb macerated in a pint of boiling water. It imparts a black color to linen, woollen, and silk. This plant grows abundantly in the lower country of S. C.

Salvia lyrata, L. Cancer weed. Grows in shady rich lands; collected in St. John's; vic. of Cha'ston; Richland district, Gibbes; Fl. June.

Ell. Bot. Med. Notes, i. 31. "The fresh radical leaves of the plant, when bruised and applied to warts, generally destroy them:" continue the application for a day or two, and renew it every twelve hours. The leaves of the Hieracium gronovii are also applied in this way.

Salvia officinalis. Sage. Ex. cult.

Ed. and Vav. Mat. Méd. 268; Mér. and de L. Dict. de M. Méd. vi. 191. This is a warm aromatic, and, according to the experiments of Ellinger, is possessed of marked antispasmodic power: it strengthens the circulatory, cutaneous, and digestive functions; stimulates the action of the nerves, and has a decided effect upon the cephalic organs (see Mérat, and authors), prescribed as a stomachic, and in catarrhal and cellular infiltration, and used as a gargle in mucous angina, and fungous ulcers.—"Cur moriatur homo cui salvia crescit in horto," became an adage, so much confidence was formerly reposed in the plant.—Its reputation is most extensive in domestic practice, the warm infusions being given as a sudorific, and

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in promoting the menstrual discharge. The plant is said to have great power in resisting the putrefaction of animal substances. Van Swieten, Com. ii. 370; Woodv. Med. Bot. It is thought to have a remarkable efficacy in stopping night sweats, infused in wine or spirits, and this opinion was sustained by Quàrin; Methodus Medend. 37. Baron Van Swieten also found it efficacious in restraining the inordinate flow of milk, after weaning children. In the English Physician, p. 295, the quaint author, Nic. Culpepper, Gent., Student in Physic and Astrology, mentions it as an aphrodisiac. "Helpeth Conception, and hinders Miscarriage." "Jupiter claims this, and bids Me tell You it is good for the Liver and to breed Blood." The essential oil deposits camphor in abundance, hence employed as a friction in rheumatism, paralysis, &c.; Journ. de Pharm. xvi. 574.

Monarda punctata, L. Dotted monarda; horse-mint; origanum. Grows in rich and damp soils; collected in St. John's, where it is found abundantly; vic. of Cha'ston; Richland district; Fl. Aug.

Chap. Therap. and Mat. Med. ii. 302; Ell. Bot. Med. Notes, 30; U. S. Disp. 462; Am. Med. Record. ii. 496; Ball. and Gar. Mat. Med. 360; Mér. and de L. Dict. de M. Méd. iv. 444; Bull des Sci. Méd. de Férus, xi. 302. This is another of our very aromatic indigenous plants, possessing stimulant and carminative powers, and regarded as a very popular emmenagogue among those residing in this country. The French authorities speak favourably of it; an aromatic oil is obtained from this; and the infusion of the leaves, recent or dried, is very efficient in allaying nausea and vomiting in bilious fevers. Dr. Chapman mentions cases of long-standing deafness cured by the oil rubbed on the head as a counter-irritant. It was used in cases of this description, and in many diseases, by Dr. Atlee of Philadelphia; see his Essay; among other affections, in hemiplegia and paralytic diseases, in the sinking state of epidemic typhus, in cholera infantum, where there is prostration of strength, and in mania à potu; sometimes employing a liniment (see Chap. Therap. and Mat. Med. ii. 305); and sometimes the undiluted oil rubbed on the parts. The oil is of an amber colour approaching to red, and, if exposed to a great degree of heat, leaves a beautiful straw-coloured *camphor!*

Thymus vulgaris. Ex. cult. in S. C.

A well-known warm aromatic.

Collinsonia Canadensis. Gravel root; horseweed; knot weed; Canadian collinsonia. Grows in the mountains of S. C.; Fl. Sept.

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The root is used in colic from lochial discharge; Linn. Veg. M. Med. 9. "The infusions of the bruised root in cider cured several alarming cases of dropsy." Shec. Flora Carol. 482, and Mease's Domest. Encycl. ii. 177. Dr. Wood says it possesses tonic, astringent, diuretic, and diaphoretic powers; the root in substance, even in small doses, is said to irritate the stomach, and produce vomiting; the active principle is volatile, so that it is best employed in the fresh state. The decoction is efficacious in catarrh of the bladder, leucorrhœa, gravel, dropsy, &c., and as a cataplasm to internal abdominal pains. U. S. Disp. 1248. Mérat says, Dict. de M. Méd. ii. 364, that, in America, it merits the name all-heal (guérit tout), having the properties referred to above. Drs. A. French and Beers speak highly of it in pains of the bladder, in ascites, and dropsy of the ovaries; given also as a powerful tonic in putrid and malignant fevers, and in leucorrhœa: the contused leaves are applied to bruises, lividities (les meurtrisseurs), pains in the stomach, and as an application to eruptions produced by the poisonous sumachs. (See Rhus.) The plant, by chemical analysis, contains tannin, gallic acid, extractive matter, and a colouring principle. *Op. cit.* See also Ann. de la Soc. Linn. de Paris, v. 508. In his late work, Griffith (Med. Bot. 513) states that, externally, it has been employed as a friction in rheumatism. See account of it by Dr. Hooker, of New Haven, Ann. Linn. Soc. Dr. H. thinks the infusion should be made with a gentle heat, in a close vessel. The best preparation is supposed to be the essential oil, which is said to be an excellent tonic, given with benefit in low fevers, exhaustion of the forces, &c.

This plant certainly merits farther notice.

Collinsonia anisata. Griffith's Med. Bot. 515.

It possesses an odour somewhat similar to that of aniseed, having the properties of the C. Canaden.

Collinsonia scabra. Rough-leaved collinsonia. Collected in St. John's, in shaded soils; Fl. June.

Mér. and de L. Dict. de M. Méd. ii. 364. It is possessed of properties similar to those of the C. Canaden. Tonic, astringent, and diuretic. See C. Canaden.

Cunila mariana, Mx. Dittany; Maryland cunila. Grows in the mountains of South Carolina; Richland, Prof. Gibbes.

Bart. M. Bot. ii. 175; Mér. and de L. Dict. de M. Méd. ii. 517;

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Lind. Nat. Syst. Bot. 276; Ell. Bot. Med. Notes, 127. The infusion forms a pleasant and refreshing drink; it is diaphoretic, and is employed in fevers and colds.

Hedeoma pulegioides, Pursh. Pennyroyal; tickweed. Grows in the upper districts, and among the mountains of South Carolina.

U. S. Disp. 365; Bart. M. Bot. ii. 165; Lind. Nat. Syst. 276, and Flora Med. 491; Griffith's Med. Bot. 508; Raf. Med. Fl. i. 231; Bart. Veg. Mat. Med. ii. 165. A gently stimulant aromatic, given in flatulent colic, and sick stomach; also, as a stimulant diaphoretic in catarrhs and rheumatism. The warm infusion is a convenient and useful prescription, which is largely employed in popular practice, in promoting the menstrual discharge. It is said that the plant, or the oil extracted from it, is an effectual remedy against the attacks of ticks, fleas, and musketoes.

Prunella vulgaris. Heal-all. Grows in dry soils; collected in St. John's, Berkley; Fl. July.

Le. M. Med. ii. 245; Med. Dict. by Carr, art. Brunella; U. S. Disp. 1291; Ed. and Vav. Mat. Méd. 276; Mér. and de L. Dict. de M. Méd. v. 520. This plant, though possessing some power as a stimulant, has fallen into disrepute. It was also used as an astringent in affections of the throat.

Scutellaria lateriflora. Mad-dog scullcap; hoodwort. Grows along ditches; Richland, Gibbes; collected in St. John's. Elliott says it is found in the mountainous districts.

Watson's Pract. Physic, 386; U. S. Disp. 1294, Appendix; Mér. and de L. Dict. de M. Méd. vi. 274; Bulletin de la Faculté, vii. 191, ann. 1820, where Spalding's (of Geo.) report concerning its anti-hydrophobic virtues is referred to. Youatt spoke in favourable terms of this remedy as enjoying the reputation for some time of being the only one for this disease. See Watson, *loc. cit.*

Scutellaria integrifolia, L. Diffused in swampy soils; collected in St. John's; vic. of Cha'ston; Fl. June.

U. S. Disp. 1294.

Nepeta cataria, L. Catnip. Nat. in upper districts; collected also in St. John's; vic. of Cha'ston; Fl. July.

Le. Mat. Med. ii. 130; U. S. Disp. 191; Ed. and Vav. Mat. Méd.

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216; Bergii, Mat. Med. ii. 540; Mér. and de L. Dict. de M. Méd. iv. 592; Dém. Élém. de Bot. 248; Am. Herbal, 26. This plant is possessed of stimulant, tonic, and warm aromatic virtues. Employed in popular practice in colds, asthma, amenorrhœa, chlorosis, hysteria, and the flatulent colic of infants. It was also used in yellow fever; and, like many others, enjoyed an ephemeral reputation as a remedy in hydrophobia. An infusion of the flowers was said to open obstructions of the liver and spleen. In the Supplement to the Dict. Univ. de M. Méd. 1846, 509, it is stated that Dr. Guastamachia had used the N. cataria with great advantage in toothache, caused by cold or carious bone, mashing the leaves in the decayed tooth; this produces an abundant flow of saliva, and causes the pain to cease in a few moments. See also Journ. de Chim. Méd. vii. 2d series. The dose of the powder is ʒiss. This plant is much used by the vegetable practitioners. Cats roll in it with the same avidity that they do in valerian, and cover it with their urine.

Dracocephalum variegatum. Vent. Grows in inundated swamps; roots frequently immersed. Collected in St. John's, Berkley, in the Santee swamps, near Somerset Pl.; vic. of Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. ii. 682. The organization of the peduncle is peculiar. See observations on certain phenomena attending the plant called the D. Americanum. Acad. des Sci. 276, 1702. It is supposed to possess a "cataleptic power." "Pourvues de cette singulière faculté," namely, "aussi la propriété de la Cataleptique, c'est-a-dire, de garder la position dans laquelle on place la fleur." Supplem. to Dict. Univ. de M. Méd. 252, 1846.

Dracocephalum Virginianum, L. Grows in the mountains of South Carolina.

Its properties are similar to those possessed by the preceding.

Leonurus cardiaca, L. Motherwort. Nat. Grows around buildings; vic. of Cha'ston; Fl. July.

"The leaves are deobstruent, laxative, diaphoretic, emmenagogue, anti-hysteric, and anthelmintic." Am. Herbal, 230; Linn. Veg. M. Med. 168. L. states that the herb, drank as a tea, is useful in hysteria, and hypochondriacal affections. Griffith, in his work on Med. Bot. 515, supposes it to be tonic, and to relieve palpitation of the heart. It is extolled in Russia as a preservative against hydrophobia.

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Marrubium vulgare. Ex. Nat. Horehound.

Pe. Mat. Med. and Therap. ii. 284; Watson's Pract. Physic, 118 and 332; Ed. and Vav. Mat. Méd. 273; Trous. et Pid. Mat. Méd.; Traité de Thérap. 308; Royle, Mat. Med. 470; Le. Mat. Med. ii. 89; U. S. Disp. 452; Ball. and Gar. Mat. Med. 358; Matson's Veg. Pract.; Cullen, Mat. Med. ii. 154; Bergii, Mat. Med. ii. 558; Woodv. Med. Bot. In the United States, it is used only as a warm aromatic stimulant. The leaves are tonic and somewhat laxative, and are employed in colds, asthma, hysteria, and menorrhagic diseases. The warm infusion acts as a sudorific, and is applicable as a palliative in phthisis and peripneumonia, but is not allowed the possession of any very decided powers. In the Supplem., however, to the Dict. Univ. de M. Méd. 457, 1846, it is said to be certainly useful in chronic rheumatism, ℥iss of the infusion being given morning and evening. See also the Journ. des Connaissances Médic. Dec. 10, 1836. Ferrein notices the root as an excellent vermifuge. Mat. Méd. i. 279, iii. 312; and Desbois de Rochefort says the decoction of three or four ounces is a good remedy in tænia. Dr. Cutler asserted that the infusion was a very useful application in salivation. Am. Herbal, by J. Stearns, LL.D. Griffith states that obstinate catarrhs are much benefited by the expressed juice taken in milk. Dose, ʒi of the powder, or ℥i—ii of the infusion, made with an ounce of the dried herb to one pint of boiling water. From this plant, it is well known, the candy so much used in pectoral affections is made.

VERBENACEÆ. (*The Vervain Tribe.*)

Callicarpa Americana, Mx. French mulberry. Collected in St. John's, Berkley, in dry soils; vic. of Cha'ston; Richland district.

Drayton's View of S. C. 62. This is said to be useful in dropsical complaints. It bears very pretty red berries, growing in whorls around the stem, which are slightly sweetish to the taste.

Verbena urticifolia, L. Nettle leaf vervain. Common in damp soils; collected in St. John's; vic. of Cha'ston; Fl. July.

U. S. Disp. 1304. Boiled in milk and water, and combined with the inner bark of the white oak, it is advantageously used in poisoning from the sumachs (Rhus). Mér. and de L. Dict. de M. Méd. vi. 868; Journ. de Méd. lxx. 529.

Verbena hastata, L. Vervain; Simpler's joy. Middle district of South Carolina and in Georgia; vic. of Cha'ston; Fl. Aug.

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U. S. Disp. 1304. This is more bitter than the European species, and it is said to be emetic.

Verbena Aubletia, L. Grows in the middle districts of South Carolina, and in Georgia; Fl. Sept.

Mér. and de L. Dict. de M. Méd. vi. 865. It is said to contain a very acrid mucilage. Dict. des Sci. Nat. x. 426.

PEDALIACEÆ. (*The Oil Seed Tribe.*)

Sesamum Indicum. { Benné. Introduced by the Africans; Fl.
" *Orientale.* { July.

This is the sesame of the Anabasis, mentioned also by Dioscorides, Theophrastus, and others. The seeds contain an abundance of fixed oil as tasteless as olive, and for which it may be substituted; it is said to be used extensively in Egypt and Arabia. Lind. Nat. Syst. 280; U. S. Disp. 661. Mérat says that in Egypt they drink large quantities of the oil morning and evening, to give them embonpoint. It is also used medicinally as a laxative, and is, by some, preferred to castor oil; also as an application to furfuraceous eruptions. In India, it is regarded as an emmenagogue, and as provocative of abortion, employed in cutaneous affections and ophthalmia; a solution is given in colic and dysentery, and used as an application for softening the skin. Mér. and de L. Dict. de M. Méd. vi. 332, and the Supplem. 1846, 657, according to which, it is also becoming an object of considerable commercial importance, being substituted for olive oil in the manufacture of Marseilles soap. See Essay of M. Hardy, Revue Agricole, Avril, 1845, 177. In the Trans. Phil. Soc., it is said that one hundred parts of the seed yield ninety of oil. Coxe, Am. Disp. art. Sesam. orient., states it was found beneficial in a dysentery which prevailed in 1803. We have seen it given to some extent, and with great advantage, in New York, in diarrhœa and dysentery, particularly in these affections as they occur in children; two or three of the leaves, thrown in water, are sufficient to render it very mucilaginous. This is taken internally. It also serves as a convenient vehicle for enema, gargles, collyria, &c. In South Carolina, the seeds are largely used by the negroes in making broths. They are also eaten parched, and are made with sugar into a very nice candy. It might be made a source of profit to raise this plant in this State, as it grows well, and the seeds bring a high price.

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BIGNONIACEÆ. (*The Trumpet Flower Tribe.*)

Bignonia crucigera, Walt. (N. A. F.)
" *capreolata*, L. and Ell. Sk.
} Rich shaded soils; coll. in St. John's, Berkley; vic. Cha'ston; Fl. March.

Shec. Flora Carol. 278. See B. crucigera, Walt. The root and vine in infusion or decoction, answer the purpose of sarsaparilla. It is detergent and alterative, aperient, diuretic, and sudorific, used in syphilis, chronic rheumatism, and in derangements arising from impurities of the blood. The pith is said to be divided longitudinally into four equal parts, so that, when the stem is cut transversely, it exhibits the appearance of a cross, and hence Walter's name. This vine appears to be possessed of instinct; it shoots up to the highest tops of trees before sending out a branch.

Bignonia catalpa, Mx.
Catalpa cordifolia, Ell. Sk.
} Catalpa. Grows in the upper and lower country of South Carolina; coll. in St. John's; Fl. May.

Mér. and de L. Dict. de M. Méd.; Supplem. 1846, 107. The physicians at Naples, after the favourable report of Thunberg and Kæmpher, as well as those of Brera, have given incontestable evidence of the advantages resulting from its use in asthma. The decoction of the fruit is also employed. See Gazette Médicale, 8, 1834; Journ. de Chim. Méd. x. 164. Kæmpher says he also applied the leaves to the painful part. Poultry are said to thrive on, and to be fond of, the seeds. The timber makes durable posts. We find no notice of the plant in the American works.

Gelseminum sempervirens, Juss. Jessamine. Grows in swamps; diffused through the lower portion of the State. It is observed that it is gradually gaining ground in the upper country. We have noticed it just beyond Columbia.

Ell. Bot. Med. Notes, 312; Frost's Elems. Mat. Med. 490. "Possessed of narcotic properties to a very considerable degree." A spirituous tincture of the root is used with success in rheumatism. It is also employed in gonorrhœa; ninety drops of the bark of the root in tincture, taken in three doses, produces vertigo, perverted vision, &c. Dr. Frost, of South Carolina, has observed its marked effect on the nervous system.

ACANTHACEÆ. (*The Justicia Tribe.*)

Ruellia strepens, L. Grows in pine barrens; collected in St. John's; vic. of Cha'ston; Fl. July.

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Ainslie, ii. 158; Lind. Nat. Syst. Bot. 285. The leaves are said to be sub-acrid.

OROBANCHACEÆ. (*The Broom Rape Tribe.*)

Orobanche uniflora, L. Squaw root; cancer root; broom rape. Grows in pine barrens in the middle district.

U. S. Disp. 1282. It is said to possess properties similar to the following:—

Orobanche Virginiana, L.
Epiphagus Americana, Nuttall. } Beech drop. Grows on beech trees exclusively; vic. of Cha'ston; Fl. Aug.

U. S. Disp. 128. It has a bitter, nauseous, astringent taste—diminished by drying; it is given internally in bowel affections. Dr. Barton thought it was one of the ingredients of a secret remedy for cancer, known as Martin's cancer powder. This is supposed to possess some of the powerful astringency belonging to the O. major. Michaux says that in Virginia they use the powder in inveterate ulcers and cancers. Lind. Nat. Syst. 288; Bart. Med. Bot. ii. 38; Mér. and de L. Dict. de M. Méd. iv. 102.

Orobanche Americana, L. Coll. in St. John's, in rich soils; vic. of Cha'ston; Fl. July.

This has been also used as a remedy in carcinomatous affections, ulcers, &c.

SCROPHULARIACEÆ. (*The Figwort Tribe.*)

Generally acrid and bitterish, sometimes dangerous in their properties.

Verbascum thapsus, Walt. Mullein. Diffused; grows in pastures, upper and lower country of S. C.; vic. Cha'ston; Fl. July.

Le. Mat. Med. ii. 446; Pe. Mat. Med. ii. 295; U. S. Disp. 735; Watson's Pract. Physic, 202; Royle, Mat. Med. 493; Journ. de Chim. Méd. ii. 228; Home, Clin. Experiments and Hist.; Bergii, Mat. Med. i. 118; Mér. and de L. Dict. de M. Méd. vi. 864; Bull. des Sc. Méd. de Férus, xvi. 341. The leaves of the flowers contain a narcotic principle; a decoction of the flowers and leaves, as tea, is beneficial in dysentery and tenesmus; it calms pain in the fundament caused by hemorrhoids; and it is used in the convulsions of infants, in ardor urinæ, and wherever the indication is to moderate spasm or irrita-

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tion. A large quantity of the flowers will even induce sleep, so active is the narcotic principle it contains. Dém. Élém. de Bot. ii. 135; Milne, Ind. Bot. 293. The leaves of mullein, warmed and applied to the feet, have given relief to those affected with gout; and the distilled water of the flowers has been used effectually in diseases of the skin; Mérat says, in erysipelas and colics. Scopoli relates that, in Carniola, mullein is esteemed valuable in the pulmonary complaints affecting cattle, (hence called cow's lungwort.) "The roots, both recent and dried, have the property of fattening poultry, even to obesity." Thornton's Fam. Herbal, 238. It is useful in stopping or diminishing diarrhœas of long standing, and often in easing pain of the intestines, which is accounted for by the anodyne, emollient, and gently astringent qualities of the plant. Woodv. Med. Bot. ii. 343. Linnæus states, in his Veg. Mat. Med. 31, that fish will become so stupefied by eating the seeds, as to allow themselves to be taken. See, also, the Æsculus pavia, which possesses similar powers. Dr. Wood refers to its value in pectoral diseases, coughs, &c. U. S. Disp. 736. The leaves, steeped in hot water, are applied externally as a feebly anodyne emollient dressing for sores, and are much used by the poorer class.

Taken internally, the dose is ℥iv, ℥j of the leaves being added to one pint of water. It would be desirable to obtain an analysis of this plant.

Verbascum lychnitis, L. Grows in S. C. according to Dr. Muhlenberg; Fl. July.

Dém. Élém. de Bot.; Mér. and de L. Dict. de M. Méd. vi. 863. The root has been used in jaundice. Durand gave an extract of the leaves in this disease, in pectoral affections, and in colics; no doubt beneficial, from its sharing the possession of the narcotic principle ascribed to the V. thapsus.

Griffith states that the flowers are said to destroy mice. Med. Bot. 517.

Verbascum blattaria. Moth mullein. Grows abundantly, according to Elliott, in the middle and upper districts; sparingly in the lower; coll. in St. John's, Berkley, near the bridge at the Big Camp, on the Santee Canal; vic. Cha'ston, Bach.; Fl. March.

Mér. and de L. Dict. de M. Méd. vi. 863.

Scrophularia nodosa, Linn. (Prodrom.)	Vic. of Cha'ston.
" *Marylandica*, Ell. Sk.	Bach.

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Griffith, Med. Bot. 518. It is vulnerary and soothing, when applied as a poultice to ulcers, burns, &c.

Chelone glabra, L. Snake head. Grows in damp soils; Richland dist.; coll. in St. John's, Berkley; vic. Cha'ston; Fl. July.

Griffith, Med. Bot. 520. In small doses, it is laxative; large quantities purge. It acts on the liver; ʒj of the powder may be given at once. It is administered by the vegetable practitioners as an anthelmintic; also in jaundice, in hepatic disorders generally, and in constipation.

Digitalis purpurea. Digitalis; foxglove.

It is stated in one of the Gazettes that this plant grows native around Charleston! See Shec. Flora Carol. 305. Ell. makes no mention of it; neither does Bachman in his Catalogue. The power this remarkable species possesses of diminishing the force of the circulation is well known. It sometimes proves violently emetic and purgative. See authors.

Gratiola officinalis,
" *Virginica*, of Mx. Ell. Sk. } Hedge hyssop. Natural. Abundant along the margins of ditches; vic. Cha'ston; Fl. April.

Bull. Plantes Vén. de France, 118. It is purgative and emetic; like the Arum, however, it loses much of its virtue when dried; a small quantity of the fresh root will purge excessively (des superpurgations extrêmemens dangereuses). It was used, says Lieutaud, as a hydragogue cathartic, ℈ii of dried root being given in dropsy, and intermittent fever. Thornton's Fam. Herbal, 23. It is also said to be powerfully anthelmintic, and was highly spoken of by the celebrated Boerhaave, by Hoffmann, and Dureau. "Relieves dropsy in the chest." Lind. Nat. Syst. 291. According to Vauquelin, the purgative property depends upon a peculiar substance analogous to resin, but differing from it in being soluble in hot water.

Gratiola aurea, Muhl. Vic. Cha'ston.

Griffith, Med. Bot. 519. It is said to be fully as powerful as the above, as a substitute for which it is employed; attention is called to it.

Veronica officinalis. Speedwell. Grows in S. C., according to Pursh; Fl. May.

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Linn. Veg. Mat. Med. 1. This is tonic and pectoral; used in asthmas and coughs; four spoonfuls of the expressed juice being given in the form of tea. Indig. Bot. 18. The infusion of the leaves is employed, on the west coast of Africa, as a drink in gravelly complaints. Drs. Frank and Scopoli wrote monographs on it; the latter affirms that he cured a very violent case, where suffocation arose from catarrhal affection, by introducing through the mouth, by a funnel, the vapour of a decoction of veronica, mixed with vinegar. It contains tannin. Mér. and de L. Dict. de M. Méd. vi. 875; Flore Méd. vi. 345. It is alluded to, in the U. S. Disp., as a diaphoretic, diuretic, and expectorant, which had passed out of use. Griffith refers to it as a mild astringent. Many of these plants only require examination, to regain the confidence once placed in them; all being liable to the fluctuations which have characterized some that are now considered our most valuable agents.

Veronica peregrina, Mx. Meek weed. Vic. of Cha'ston.

Griffith's Med. Bot. 517. In some portions of the United States, it is supposed to be very efficacious; and is used internally, and externally as a wash in scrofulous tumours on the neck.

Veronica Virginica, L. *Leptandra*, Nutt. { Virginian veronica. Grows in the mountain valleys; Fl. August.

U. S. Disp. 772; Mér. and de L. Dict. de M. Méd. vi. 816. The root is bitter and nauseous, yielding its active properties to boiling water. In the recent state, it is said to act violently, sometimes as a cathartic, and sometimes as an emetic.

Veronica anagallis, Mich. Brook pimpernel; long-leaved brook-lime. Grows in S. C., according to Pursh, Nat.; Fl. July.

Dém. Élém. de Bot. ii. 130. The infusion is diuretic, antiscorbutic, and vulnerary.

SOLANACEÆ. (*The Nightshade Tribe.*)

Leaves are narcotic and exciting—tubers generally wholesome.

Capsicum annuum. Pepper. Cultivated in S. C.

Its properties are well known.

Solanum nigrum, L. Deadly nightshade. Grows in rich soils; collected in St. John's, Charleston district; vic. of Cha'ston; Fl. July.

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Trous. et Pid. Mat. Méd. i. 206; U. S. Disp. 304; Eberle, Mat. Med. ii. 89; Ed. and Vav. Mat. Méd. 343; Royle, Mat. Med. 495; Pe. Mat. Med. and Therap. ii. 326; Le. Mat. Med. ii. 272; Mér. and de L. Dict. de M. Méd. vi. 417; Journ. de Chim. Méd. iii. 422 and 541; Nouv. Journ. de Méd. x. 67; Alibert, Nouv. Éléms. de Thérap. i. 417. The berries are an active narcotic poison; one grain of these, in augmented doses, is used as a remedy for increased flow of urine. It is indicated in diseases affecting the bladder, rebellious ulcers, &c. Milne, Ind. Bot. 315; Bull. Plantes Vén. de France, 155; Dém. Élém. de Bot. ii. 139. When swallowed, headache, violent distortion of limbs, and delirium supervene. Rucke mentions a case of a family having eaten the leaves, and being attacked with swelling of the face, accompanied with burning heat, followed by gangrene. Forskall, in his Flora Ægypt. Arabica, says that an application of the bruised leaves acts as a specific in the disease termed by the Arabs bulla, and, applied with hogs' lard, cures whitlows. Cæsalpinus states that the juice, or a decoction, proved useful in inflammation of the stomach. Gataker, in his "Observations on the Use of the Solanum," commenced by giving a grain, which acted gently as an evacuant by sweat, urine, and stool; if the dose was too large, it produced vomiting, profuse perspiration, or too copious a discharge by the kidneys, or diarrhœa, and sometimes dimness of sight, vertigo, &c. He used it frequently in nervous affections, obscure pains, and dropsy. Stearns' Am. Herb.; Mér. and de L. Dict. de M. Méd. The leaves, beat up into a poultice, are applied to painful parts, hemorrhoids, &c., and as a cataplasm in spasmodic retention of urine, and in catarrh of the bladder, no doubt producing beneficial results by its narcotic properties. Combined with bread, or bruised and applied alone, it eases headache and pain in ears, helps inflammation of venereal kind, pains from cancerous tumours, and is applied with advantage in herpetic, syphilitic, and scorbutic eruptions. Given internally, one-half grain infused in ℥j of boiling water may be used. See also Linnæus, Veg. Mat. Med. 34; Flore Méd. v. 239. It was mentioned by Dioscorides, lib. iv. 56. By the analysis of Desfosses, the berries furnish an alkaloid called solanine, possessed of marked properties. Nouv. Journ. de Méd. x. 67; Journ. de Chim. Méd. iii. 541. Dunal says it induces dilatation of the pupil by friction, as completely as it is accomplished by belladonna. Auc. Journ. de Méd. vi. 150; Hist. Méd. des Solane, by Dunal. It has been doubted whether it produces any impression upon epileptic patients. Botanique Méd. 292. The fumes arising from the

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burning of the fresh fruit are valuable in curing toothache. Gazette of Health, May, 1824. The juice furnishes a reactive agent which indicates, at the same time, acids and alkalies; according to S. Boullay, Bull. des Pharm. ii. 576; and in the Observs. on different English species by Bromsfield. See also Desfosses, Chem. Anal. of the narcotic principle, followed by some cases illustrating the action of that principle; Revue Méd. iv. 463. Griffith, Med. Bot. 482, says that it appears to possess the same properties as the S. dulcamara, but in a greater degree; accounted for by the fact that solanina exists in it in larger proportion. Orfila found the extract equal in power and energy to that of lactucarium. Toxicol. Gén. ii. 190. It may be employed in the same description of cases as the bittersweet. Eberle thinks it is by far too much neglected.

Solanum Carolinense, Michaux. Horse nettle. Diffused; collected in St. John's, in pine barrens; vic. of Cha'ston; Fl. Aug.

Mér. and de L. Dict. de M. Méd. vi. 410. Valentin employed it in tetanus (non traumatique). The juice of five or six berries was used, augmenting the dose from day to day. See "A notice of the different methods of treating tetanus in America, with observations on the good effects of the S. Carolinense," (in French.) Journ. Gén. de Méd. xl. 13. They did not have it in sufficient quantities to repeat the experiment; with us it is abundant. It possesses some reputation among the negroes in this State, as an aphrodisiac.

Solanum mammosum, Pursh. Vic. of Cha'ston.

Lind. Nat. Syst. 295. The decoction of the root is bitter, and is esteemed a valuable diuretic. Ainslie, M. Med. 291; Griffith's Med. Bot. 483. It bears a poisonous fruit, which is said to contain malate of solanina. Its extract, in small doses, has been given in cardialgia, lepra, &c. Flore Méd. Antill. iii. 159.

Solanum Virginianum, Pursh. Grows in sandy soils; vic. of Cha'ston; Fl. July.

Stearns' Am. Herbal, 154. The leaves are anodyne; the juice of the whole plant is sharp and corrosive, and inspissated in the sun to the consistence of an ointment, is applied to cancers and ulcers. "The plant is good in rheumatic affections, and in those proceeding from venereal taint—surpassing opium." It has also been found serviceable in itch and herpes. From this statement, it appears to resemble in its properties the S. nigrum.

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Solanum tuberosum. Cult. Irish potato. It is said to have been originally carried to Europe from Virginia. Baldwin found it growing wild in Peru.

Dém. Élém. de Bot. ii. 142. The juice of the leaves is said to be an excellent diuretic. "Nous avons remarqué, que les enfans de nos provinces, nourris avec ces racines, ont le ventre gros, dur, et font sujets à des glandes tuméfiées!" Lind. Nat. Syst. Bot. 295, where it is mentioned that the root, in a state of putrefaction, is affirmed to give out a light sufficient to read by. Macculloch said potash could not be obtained from the stalks, though it exists largely in the plant. Griffith's Med. Bot. 483. An extract of the leaves is highly spoken of by Mr. Dyer in chronic rheumatism, and in painful affections of the stomach and bowels; he thinks it ranks between conium and belladonna. Pharm. Journ. i. 590.

Solanum lycopersicum. Ex. cult. Tomato.

The fruit of this plant is well known as an article of food; it is slightly acid, and has a constipating effect, which renders it so appropriate as an article of food during the warm months of summer. The leaves are said to produce vomiting, from an alkaline principle which exists in them; they also contain calcareous sulphates, extractive, and a colouring matter, combined with a volatile oil. See analysis in Journ. de Pharm. xviii. 106; Griffith's Med. Bot. 483. The alkaloid principle contained in the leaves is analogous to, if not identical with, solanina. A peculiar oil, and an animalized extractive are also ascribed to it by other observers. Journ. Phil. Coll. Pharm. iv. 224. The fruit contains a peculiar acid, and a brown, tarry, odorous, resinous matter, with some indications of the presence of an alkaloid. It is said to act on the biliary functions.

Physalis pubescens. Grows in sandy soils; collected in St. John's; Fl. July.

Mér. and de L. Dict. de M. Méd. v. 296; Journ. de Chim. Méd. vi. 210. It is supposed that the species bearing this name in Europe and America are different. The former is interesting.

Physalis viscosa, L. " *obscura*, Mich. " *pubescens*, W.	Ground cherry. Diffused; grows along roads; collected in St. John's, Berkley; vic. of Cha'ston; Fl. Aug.

This is said by Clayton to be actively diuretic.

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Atropa physaloides. Grows around buildings; in rich soils; Fl. Aug.

This plant would probably be found, upon examination, to be possessed of some medicinal qualities.

Nicotiana tobacum, W. Tobacco. Introduced.

This plant grows in South Carolina and Georgia. In the lower portions of the latter State, it is planted as an article of trade. Its properties are well known. See authors.

Datura stramonium, Linn. Jamestown weed; thorn apple; stramonium. Diffused; grows abundantly in upper and lower districts; Fl. July.

Trous. et Pid. Traité de Thérap. et de M. Méd. i. 230; Orfila, Traité de Toxicol. Journ. Univ. des Sci. Méd. 47, 227; Ell. Bot. 276; Drayton's View, 63; Edin. Med. and Surg. Journ. vii. and viii. 1812; Trans. Med.-Chirurg. Soc. Edin. i. 285; Archives Générales de Méd. iv. 373; Med.-Chirurg. Trans. Lond. vii., ann. 1806; Bell's Pract. Dict. 434; Eberle, Mat. Med. ii. 80; Ed. and Vav. Mat. Méd. 438; Pe. Mat. Med. and Therap. ii. 308; Frost's Elems. Mat. Med. 460; U. S. Disp. 688; Watson's Pract. Physic, 197; De Cand. Phys. Vég. i. 354; Bayle, Bill. Therap. ii.; Big. Am. Med. Bot. i. 17; Woodv. Med. Bot. 74, 197; Traité de Chimie, 81, 319; Paris's Pharm.; Bart. Essay Form. Mat. Med. 48; New England Med. and Surg. Journ. iv. 226; Med.-Chirurg. Trans. vii. 2; Ball. and Gar. Mat. Med. 346; Cullen, Mat. Med. ii. 281; Bergii, Mat. Med. i. 122; Mér. and de L. Dict. de M. Méd. ii. 593; Bull. des Sci. Méd. de Férus, xi. 197; Lindenstolpe, de Venenis, 531, *op. cit.;* Sauvage, Nosol. ii. 430; Greding, in Ludwig's Adversaria, i. 345; Murray's Apparat. Med. i. 670; Fowler, in Med. Comment. v. 161; Adhelius, cit. in Med. Com. Phil. Trans. Abridg. vi. 53; Rush, in Phil. Trans. i. 384; Schœpf, Mat. Med. 25; Wedinburg, Med. Comment. iii. 18; Beverly's Hist. Virginia, 121; Med. and Phys. Journal, xxv. xxvi; Cooper, in Caldwell's Thesis, vol. i.; Shec. Flora Carol. 497; New York Med. Repos. ii. 27; Lind. Nat. Syst. Bot. 294.

A well-known narcotic and antispasmodic, employed in mania, epilepsy, chorea, tetanus, and palsy.

Bergius frequently saw maniacs restored to perfect saneness of mind, which they never afterwards lost, by the continued use of the extract of our common stramonium; and by the same means he

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effectually cured the delirium so often attendant upon childbirth, where every other remedy had proved abortive. Bull. des Plantes Vén. et Suspect. de France, i. 38; Dém. Élém. de Bot. ii. 75; Milne, Ind. Bot. 285. Adhelius states that, of fourteen patients who suffered under epilepsy and nervous affections, in a hospital at Stockholm, eight were completely cured, five relieved, and only one received no benefit. Thornton's Fam. Herb. 188; Woodv. Med. Bot. ii. 339; Storck, i. c. 5; Kames in Comm. Nov. 1733, p. 251; Lobsten, Epistle ad Gurren, Plantes Vén. Alsat. Eph. Nat. Cur. cent. ix. obs. 94; Huckel in Comm. Nov. 1744, 14; Barrex, Essai sur l'Hist. Nat. de la France, 48; Buchner, Misc. Phys. Mat. 122. The seeds are soporific, and are said to induce delirium, and a partial forgetfulness; and to be used by women in the East for purposes herein stated, viz.: "Ab India alia inebriantia et aromatica in electuarium recipitur semen, ad grata phantasmata cienda, et, ut quidem volunt, quo ad celera patranda, tanto audaciores evadant." Kæmpher, Exotic, 650. "Somnum facit adeo profundum ut impune pudicitia puellæ violari possit, quæ hoc toxicum sumserit." Haller, t. c. "A mulieribus infidis Turcis gynecæis inclusis, ad consopiendos et dementandos maritos, quo aliorum majis desideratorum amplexibus satientur, usurpari, et Hamburgi a vetula sic honestam feminam, quo se inscia mœchum admitteret, intoxicatam narratur." See Lindenstolpe, de Venenis, 531; Mér. and de L. Supplem. to Dict. de M. Méd. 238, 1846. Dr. Begbie has given the extract, with great success, in doses of ¼—½ grain every four hours, in many cases of neuralgia. Revue Méd. iii. 57, and iv. 414. Dr. Fott relates the case of a young lady, who was cured in six weeks of tic douloureux, by using 8—15 drs. of the tincture. Gazette de Santé, Janvier, 1830, p. 8; Emploi du Stramonium dans l'Asthme Nerveux, Paris, 1835. Series of Observations in relation to the use of the dried leaves, as a purgative, in the treatment of asthma, (in French.) Bull. de Thérap. vi. 12, 336. Ducros' Observations on the efficacy of the leaves of Dat. stramonium in a case of angina pectoris, from the Bull. de Thérap. vii. 93. Serres' Observations on the employment of extract of stramonium in facial neuralgia. Bull. de Thérap. xiv. 51. F. Moreau, Mém. on treatment of hallucination by stramonium, in Gazette Médicale, 373, 1841; see also Bibliothèque de Thérap. by M. Bayle, ii. 249. Lindley, in his Natural System, says it is more particularly applicable in "mania without fever." The remedies for poisoning by this plant are a speedy emetic, the free use of vegetable acids, strong coffee, &c. Dr. Fisher, President of the Massachu-

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setts Medical Society, found stramonium useful, remarks Bigelow, in those cases of epilepsy which are diurnal, or have regular returns. It was unsuccessful in those which did not observe any regular period. In tic douloureux of long standing, it is advised that it be taken in large doses, and that the system be kept under its influence. The leaf, prepared and smoked as tobacco, has been found to act as a palliative in asthma; the root being less useful in this respect. From the observations of Dr. Marcet, Phys. Guy's Hosp., taken internally, it had proved very effectual in removing acute pains, as in those arising from chronic diseases, acute uterine affections, for instance. Decided benefit was obtained from it in four cases of sciatica, and in two others, complicated with syphilitic pains. Eberle used it in this disease with entire success; and he states that his trials with it, in rheumatism, were exceedingly flattering. Dr. Chapman administered it in dysmenorrhœa. The employment of the ointment in allaying pain was known as far back as the time of Gerarde, 1597. It is efficacious in changing the condition, and promoting cicatrization; acetate of lead being employed with the ointment, as an application to painful and irritable ulcers, and hemorrhoidal tumours. Preparations of stramonium, applied to the eye, it is well known, diminish sensibility, and dilate the pupil. We have seen the extract employed to a large extent in the New York Eye Infirmary, in which institution it has entirely taken the place of belladonna, as an application for dilating the pupil. Its virtues reside in an extractive principle, which is dissolved by water. The powder should be kept in closely stopped bottles; the juice may be pressed out of the leaves with a bag. The ointment may be made with a pound of the fresh leaves, simmered in three of lard, until the leaves become crisp, then strained, and cooled gradually. Griffith, Med. Bot. 461. Its peculiar properties depend upon a principle called daturia, very analogous to hyoscyamia, slowly dilating the pupil, and exercising a poisonous influence. Mr. Morries, in Ed. Med. and Surg. Journ. xxxix. 379, has described an empyreumatic oil obtained from it, closely allied to that from the foxglove. Stramonium is stated to be an acro-narcotic, very similar to belladonna; but acting in a more marked manner upon the secretory functions. Chapman says it is considered useful rather in allaying the excessive mobility of the system than in tending to the absolute cure of the complaint; referring to its effects in mania and epilepsy. Dr. Marcet regards its operation on the bowels as relaxing rather than astringent. The ointment has been recommended in nymphomania, to lessen venereal excitement. The dose of the pow-

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dered leaves is one grain; of the seeds, a half grain; of the extract of the seeds, one-quarter of a grain; from the leaves, one grain; of the tincture, ten drops, to be increased if necessary. In dilating the pupil with the extract, preliminary to an examination of a diseased eye by the catoptric test, we have repeatedly found it to allay supra-orbitar pains. To relieve the latter, so often a distressing concomitant, we frequently prescribe it, with equal parts of mercurial ointment, and xxx grs. of mur. morphiæ, as a local application.

Datura tatula, L. Purple thorn-apple. Grows around Charleston; Fl. July and September.

U. S. Disp. 690. "It possesses very much the same properties as the D. stramonium." Mér. and de L. Dict. de Mat. Méd. 599. The decoction of the leaves is employed in leprosy. Dict. des Drogues, ii. 56. Said to be aphrodisiac.

GENTIANACEÆ. (*The Gentian Tribe.*)

Characterized by intense bitterness.

Gentiana Catesbæi, Walter. Sampson's snakeroot. Damp soils along rivulets; collected in St. John's; vic. of Cha'ston; grows in Georgia also; Fl. September.

Big. Am. Med. Bot. ii. 138; U. S. Disp. 348; Bell's Pract. Dict. 218; Mér. and de L. Dict. de M. Méd. iii. 361; Coxe, Am. Disp. 304; Frost's Elems. Mat. Med. 359; Griffith, Med. Bot. 461. An excellent bitter tonic, "little inferior to the European gentian," introduced to notice by Dr. M'Bride, of St. John's, Berkley, South Carolina. It is frequently prescribed with advantage in pneumonia, attended with typhoid symptoms, and in dyspepsia. The virtues reside in a bitter extractive principle, soluble in water and alcohol. It may be advantageously combined with chalybeates. It is employed to some extent in popular practice in this State, and is found of much service as a substitute for bitters. The decoction is the form prescribed in pneumonia. The saturated spirituous tincture is advised in dyspepsia, and in debility of stomach, in doses of $\frac{1}{4}$—$\frac{1}{2}$ of a fluidounce. Given before meals, it invigorates the stomach, increases the appetite, and prevents acidification of the food.

Gentiana ochroleuca, W. Grows in damp soils; collected in St. John's; vic. of Cha'ston; Fl. Sept.

Ell. Bot. Med. Notes, 340. It possesses properties somewhat similar to the above.

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Gentiana saponaria, L. Vic. of Cha'ston.
Griffith, Med. Bot. 461.

Gentiana quinqueflora, Frl. This and the G. sap. are esteemed fully equal to the imported gentian. In large doses, they are said to be laxative!

Sabbatia angularis, Pursh. *Chironia*, Linn. — Am. centaury. Grows in low soils, along rivulets; coll. in St. John's, Berkley; vic. of Cha'ston.

Ell. Bot. Med. Notes, i. 385; Chap. Therap. and Mat. Med. 438; ii. 417; U. S. Disp. 611; Pe. Mat. Med. and Therap. ii. 344; Royle, Mat. Med. 475; Eberle, Mat. Med. i. 307. See Chironia, Big. Am. Med. Bot. iii. 147; Bart. M. Bot. 1255; Ed. and Vav. Mat. Méd. 1176; Barton's Collec. i. 15; Lind. Nat. Syst. Bot. 297; Griffith's Med. Bot. 459; Frost's Elems. Mat. Med. 529. "This is a pure bitter, with tonic and stomachic properties." Bigelow does not hesitate to attest its utility; and Eberle considers it one of the most valuable of our indigenous remedies of this class: employed in domestic practice in intermittent fever, but principally to invigorate the stomach and alimentary canal. Barton says it was given with success in certain stages of the yellow fever. The cold infusion of ℥j of the herb to one pint of boiling water, taken in doses of a wineglassful every two hours, may be used, or thirty grs. to ʒj of the powder, which also acts as a vermifuge.

Sabbatia stellaris, Ph. (Prodrom.)
" *gracilis*, Mich. Ell. Sk. — Grows in damp soils; vic. of Cha'ston; collected in St. John's; sent to us from Abbeville by Mr. Reed. It possesses properties similar to the above.

Frasera Carolinienseis, Walt.
" *Walteri*, Mich. — Am. colombo. Found in Fairfield and Abbeville districts.

Ell. Bot. M'Bride's Note, i. 205; Drake's Cincinnati, 86; Bart. Veg. Mat. Med. iii. 107; Raf. Med. Fl. i. 196; Coxe, Am. Disp. 297; Frost's Elems. Mat. Med. 534; Mér. and de L. Dict. de M. Méd. iii. 291; Griffith's Med. Bot. 463. "A pure, powerful, and excellent bitter, destitute of aroma." Lind. Nat. Syst. Bot. In the recent state, it is said to possess considerable emetic and cathartic power: the root is employed as a tonic and febrifuge, and is sub-

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stituted for the officinal colombo with equal advantage, given during the convalescence from fevers. By the analysis of Mr. Douglas, Am. Journ. Pharm. vi. 157, it contains bitter extractive, gum, tannin, gallic acid, resin, fatty matter, sugar, &c. Griffith, in Journ. Phil. Coll. Pharm. iii. 269. In the recent state, it is employed as a substitute for rhubarb, in doses of thirty grs. to ʒj of the infusion of ℥i of the root to one pint of boiling water, of which a wine-glassful may be taken three times a-day. It is also useful, prescribed as a tonic. This plant holds a deservedly high rank among our native tonics, and we would recommend its employment to those residing in localities where it may be found.

SPIGELIACEÆ. (*The Wormseed Tribe.*)

Spigelia Marylandica, Walter. Pink-root. Abundant in the lower portions of South Carolina; collected in St. John's; vic. of Cha'ston; Fl. May.

Lining, Essays and Obs. Phys. Lit. South Carolina, i. 386; Garden's Essay Phys. and Lit. iii. 145; Ell. Bot. Med. Notes, 237; Eberle, Mat. Med. ii. 377; Chalmers on the Weather and Diseases of S. C. i. 67; Frost's Elems. Mat. Med. 187; Le. Mat. Med. ii. 377; Big. Am. Med. Bot. i. 142; Home, Chim. Exper. 420; Murray's App. Med. i. 548; Royle, Mat. Med. 469; Thompson's Inaug. Diss. Fenella, Journ. de Pharm. ix. 197; Griffith, Phil. Journ. Pharm. 1833; Bell's Pract. Dict. 433; Ed. and Vav. Mat. Méd. 595; Pe. Mat. Med. and Therap. ii. 344; U. S. Disp. 680; Ball. and Gar. Mat. Med. 334; Bergii, Mat. Med. i. 96; Mér. and de L. Dict. de M. Méd. vi. 502; Coxe, Am. Disp. 128 and 558; Bull. des Sci. Méd. de Férus, xi. 301; Lind. Nat. Syst. Bot. 299; Bart. Am. Med. Bot. ii. 80; Woodv. Med. Bot. ii. 289. See Dr. Brocklesby's Obs. Med. 282; Griffith's Med. Bot. 466. This plant is a well-known indigenous anthelmintic, possessed of narcotic and cathartic powers. Dr. Barton found it also useful in the fevers of children not proceeding from verminous irritation, as from those, for instance, consequent upon hydrocephalus. The root contains a heavy, gross, and volatile oil, a small quantity of resin, a peculiar bitter substance, spigeline, albumen, gallic acid, salts, &c. See Anal. Journ. de Pharm. ix. 197. According to Feneuille, spigeline is bitter, nauseant, and purgative, and produces a sort of intoxication (ivresse). The root is much more active in the recent state. With senna, it forms the well-known and efficacious remedy called worm tea: composed of spig. ℥ss; senna two drachms;

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savin half a drachm, and manna two drachms—to be infused in a pint of water, and strained, of which i—ii ounces may be given to a child. This dose does not excite narcotic symptoms. Chalmers' Hist. S. C. Dr. Lining, of South Carolina, gave twelve grs. of the root of this plant to an infant morning and evening; x—xx grs. may be given to one of seven, and ʒj to an adult, repeated two or three times a-day; or, an ounce of the root infused in one pint of water, of which a half may be taken by an adult, and one or two spoonfuls by a child. When a full dose is given at night, it is well to follow it by a purge in the morning. Dr. J. P. Thomas informs us that his children drink the pink-root tea habitually as a beverage, and prefer it to the hyson; and in this way it proves prophylactic against worms.

APOCYNACEÆ.

It contains species with purgative, acrid, and febrifugal properties.

Forsteronia difformis, D. C. (Prodrom.) *Echites* " Walter, and Ell. Sk.	A vine. Found sparingly in this State; collected in St. John's, Berkley, on Sarrazin Pl. (Mrs. I. S. Porcher's); found also in the vic. of Cha'ston.

Mér. and de L. Dict. de M. Méd. iii. 51. With milk, it is used as a wash for freckles. The juice is said to be sufficiently caustic to destroy warts and scirrhous excrescences. Any portion of the plant will coagulate milk.

Apocynum cannabinum, L. Indian hemp. Grows along fences in wet soils; collected in St. John's; vic. of Cha'ston; Fl. July.

Bell's Pract. Dict. 61; Pe. Mat. Med. and Therap. ii. 365; Journ. Phil. Coll. Pharm. v. 136; Am. Journ. Med. Sci. xii. 55; Dr. Griscom, in *op. cit.*; U. S. Disp. 108; Am. Med. Rev. iii. 197; Ball. and Gar. Mat. Med. 338; Mér. and de L. Dict. de M. Méd. i. 368. This is a powerful emeto-cathartic, producing diaphoresis, and expectoration, inducing also a tendency to sleep, independent of the exhaustion consequent upon vomiting. The evacuations brought on by it are large, feculent, and watery; and they are succeeded by perspiration. Am. Journ. Med. Sci. *loc. cit.* "It diminishes frequency

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of the pulse, and induces drowsiness." This plant is one of our most powerful hydragogue cathartics and diuretics, and has frequently cured aggravated cases of ascites. It acts so decidedly in draining the system, that Dr. Rush called it the "vegetable trocar." We have seen it used with advantage in dropsy, by Dr. V. Mott, among his clinical patients; he employs it in all cases of tonic dropsy, being too active for those of an atonic character, where iron would have been advisable. Dr. Knapp states, in his Inaug. Thesis, that fifteen to twenty grains of the powdered root would induce vomiting: he gave it in intermittent fever, in pneumonic affections, in dysentery, and as an alterative in enteritis. It acts as a sternutatory, and the fresh juice has been employed as an external application in some cutaneous affections. By chemical analysis, it is shown to contain tannin, gallic acid, gum-resin, wax, fecula, and a bitter principle, apocyne. Mérat states, in the Supplem. to the Dict. de M. Méd. 52, 1846, that the preparation called apocyne, combines all its valuable constituents. Revue Méd. Oct. 1833, and Journ. de Chim. Méd. x. 95 et 567: see also Griffith, Med. Bot. 449. The decoction, made with ℥j of the root in one pint of boiling water, is given in doses of a wineglassful three times a day. The bark furnishes a fibre resembling hemp, of a whiter colour, and superior in durability; and the decoction affords a permanent dye, brown or black, according to the mordant used. It is given to some extent in domestic practice in the lower portions of this State, and is called by the negroes "Gen. Marion's weed," from its having been a favourite remedial agent in the camp of the partisan leader.

Apocynum androsæmifolium, L. Dog's-bane. Grows in damp rich soils; vic. of Cha'ston.

Big. Am. Med. Bot. ii. 148; Mér. and de L. Dict. de M. Méd. i. 368; Coxe, Am. Disp. 85; Kalm's Travels, 326; Griffith, Med. Bot. 450. Thirty grains of the powder of the recently dried root is emetic, and diaphoretic, causing scarcely any previous nausea; so that it is suitable for evacuating the contents of the stomach, without producing exhaustion, or relaxation of the muscular system. It operates in this way as effectually as two-thirds of the quantity of ipecacuanha. The active property is diminished by keeping. As a diaphoretic, it is best combined with one grain of opium. Dr. Zollickoffer considers it a useful tonic, in doses of x—xx grs. The Indians used it in lues venerea. Mér. and de L. Dict. de M. Méd. It is also employed by the vegetable practitioners. See Howard's Imp. Syst. Bot. Med. 291. It is supposed to contain a bitter, extractive

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principle, a colouring principle soluble in water, caoutchouc, and a volatile oil. The wounded plant emits a copious milky juice.

ASCLEPIADACEÆ.

Roots generally acrid and stimulating. Some of them emetic.

Gonolobus macrophyllus, Mich. Variety *a* and *b*. Collected in St. John's, Berkley; vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, i. 328; Mér. and de L. Dict. de M. Méd. iii. 409; Ann. du Muséum, xiv. 464. It is one of the substitutes for colocynth; Mérat says, "Cette apocynée des États Unis passe pour fournir le suc avec lequel les sauvages de ce pays empoisonnent leurs fleches."

Asclepias tuberosa, W.
" *decumbens*, of some Bot. } Pleurisy-root; butterfly-weed. Grows abundantly in pine barrens; collected in St. John's; Fl. July.

U. S. Disp. 127; Pe. Mat. Med. and Therap. ii. 347; Chap. Therap. and Mat. Med. i. 351; Ed. and Vav. Mat. Méd. 345; Eberle, Mat. Med. ii. 219; Ell. Bot. Med. Notes, i. 326; Big. Am. Med. Bot. ii. 65; Thacher's U. S. Disp., art. A. tuberosa; Bart. M. Bot. i. 244; Lind. Nat. Syst. Bot. 304; Am. Med. Record, iii. 334; Frost's Elems. Mat. Med. 217; Bell's Pract. Dict. 82; Cullen, Mat. Med. i. 6; Mér. and de L. Dict. de M. Méd. i. 467; De Cand. Prodromus, 458; Shec. Flora Carol. 220; Barton's Collec. 48; Lind. Nat. Syst. Bot. 304. This plant is actively diaphoretic and expectorant, without being stimulant. "It has the singular property of exciting general perspiration, without increasing, in any perceptible degree, the heat of the body." (Lindley, see A. decumbens.) In large doses, it is purgative. It has been advantageously used in rheumatism, in most pectoral affections, catarrh, subacute pneumonia, and in phthisis, as a palliative. It has also been favourably employed in dysentery. Shecut says that thirty grains of the powdered root, at a dose, was much esteemed in this disease. Dr. M'Bride, of St. John's, Berkley, S. C., experimented largely with it in pleurisy, generally finding it to act with advantage. Eberle used it; and Dr. Parker employed it for twenty years with continued confidence. In a communication from Dr. John Douglas, of Chester District, S. C., we have the results of the experiments of Mr. M'Keown, who believes it expectorant, tonic, diaphoretic, and sudorific; and who has employed it with benefit in pectoral affections; he considers that a

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teaspoonful of the powdered root in hot water, often repeated, acts as a safe and useful substitute for the preparations of antimony; he has also observed that the same quantity of the root, with half the amount of snakeroot (Aristoloch. serp.), given several times a day, for several days, will induce soreness of the mouth, with free and copious salivation; this soon subsides, without any of those disagreeable results which follow the administration of the mercurial preparations. Should this effect be constant, it might be made of great service. The powdered root has been employed as an escharotic, for restraining the growth of fungous flesh in ulcers. When the diaphoretic effect is desired, the decoction of ℥j of the root to one quart of water is best given in dose of a teacupful every two hours.

Asclepias incarnata, W. "Grows in the valleys, among the mountains of South Carolina." Elliott; vic. of Cha'ston; Bach.; Fl. July.

U. S. Disp. 126; Journ. Phil. Coll. Pharm. iv. 283; Griffith, Med. Bot. 455. Dr. Griffith speaks of it as a useful emetic and cathartic; and Dr. Sully says it may be given advantageously in asthma, catarrh, and syphilis; no doubt, very similar in properties to the A. decumb.

Asclepias verticillata, L. Dwarf milk-weed. Collected in St. John's, Berkley.

This is a domestic remedy in repute for the bite of snakes. It is said, by those who have used it in the upper districts of South Carolina, to be very deservedly celebrated. These plants emit a milky juice, when bruised; with the aigrette of the seeds, a fleecy down one or two inches in length, somewhat resembling silk, it has been proposed to make cloth.

OLEACEÆ. (*The Olive Tribe.*)

This order is said, by Lindley, to offer one of the few instances of oil being contained in the pericarp; it being, in most other plants, yielded by the seeds.

Chionanthus Virginica, Walter. Old-man's beard; poison ash; fringe tree. A very ornamental plant; collected in the swamps of St. John's, Berkley; vic. of Cha'ston; Fl. April.

Ell. Bot. Med. Notes, i. 6. An infusion of the roots is given in long-standing intermittents. It is tonic, and febrifugal, with some acrid-narcotic properties; used in the form of cataplasm as an application to wounds and ulcers. Griffith, Med. Bot. 44.

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Fraxinus acuminata, La. M. Grows in rich swamps.

Ell. Bot. Med. Notes, ii. 673. The wood is light, elastic, and strong; used by carriage and cabinet makers, and wheelwrights.

Class II. GYMNOSPERMS.

Coniferæ, or Pinaceæ. (*The Fir Tribe.*)

One of the most important orders, whether we view it in reference to its timber, or its secretions.

Pinus palustris, L.
" *australis*, Mich. — Long-leaved pine. Grows along the sea-coast, in the tertiary region, and within 120 miles of the ocean. We have observed it in the lower part of Fairfield district; Fl. May.

Bell's Pract. Dict. 359; U. S. Disp. 709; Pe. Mat. Med. ii. 167; Ball. Gar. M. Med. 309; Royle, Mat. Med. 564. This is the most valuable of the pine trees, and from it the largest amount of tar, pitch, and turpentine is obtained. The spirits of turpentine is a well-known and valuable diffusible stimulant, diuretic, and anthelmintic, in large doses acting as a laxative. It is from this species that the Boston turpentine is obtained, which enters into the composition of a soap of very superior quality. This tree shoots up into a straight shaft, devoid of branches sometimes for fifty or sixty feet; the heart is very durable, and the wood is employed for almost every purpose.

Pinus rigida, L. Pitch pine. Vic. Cha'ston.

U. S. Disp. 207. From the P. palustris, and from this species, tar is extracted which contains two principles valuable in medicine, viz., *picromar* and *creasote*. It is used in chronic cough, and bronchial inflammation. Tar water had great reputation at one time, and is really not devoid of some value. The vapour also is employed in bronchial diseases, and the ointment in tinea capitis and psoriasis. The resin from these species is frequently made into pills, and taken for colds, by those residing in the country—among whom, also, it is frequently employed with success in chronic blennorrhagia. A medical friend informs us that, in one individual who took the pine gum in large quantities, it produced an irritation of the urethral mucous

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membrane similar to that resulting from the use of the spirit when improperly given.

Pinus nigra, Aiton. Black spruce; fir. In this State, confined to the high ridges of the Alleghany mountains; Fl. May.

U. S. Disp. 710; Ell. Bot. ii. 641. From this species, the essential oil of spruce is obtained; prepared by boiling the young branches, and evaporating the decoction; it has a bitterish, astringent, acidulous taste. The tall, slender bodies of this tree are used for the spars of vessels.

Pinus strobus, L. Found in the declivities of the mountains of S. C., in the dark sphagnous swamps along rivulets; Fl. May.

The wood is soft, fine-grained, and light, and free from turpentine. It is used for the inner work of houses, for boxes, cabinets, &c. "Preferred for the masts of vessels to all other wood."

Pinus tæda, L. Abundant along the sea-coast; coll. in St. John's; grows in Georgia; Fl. April.

Pe. Mat. Med. ii. 161; U. S. Disp. 709. This also yields turpentine.

Abies balsamea,
" *balsamifera*, Mich.
Pinus balsamea, Willd.
} American silver fir, or Balm of Gilead tree. Grows on the summits of the mountains of S. C.; Fl. April.

Griffith, Med. Bot. 605; U. S. Disp. 710. From this elegant species, the Canada balsam is obtained; receiving this name, though containing no benzoic acid. Mér. and de L. Dict. de M. Méd. v.

Abies Canadensis,
Pinus, Linn.
} Hemlock spruce. Confined to the highest mountains.

Ell. Bot. ii. 641. The bark is valuable for tanning, though inferior to that of the oak.

Thuja occidentalis, L. Arbor vitæ. Confined to the mountain districts, along streams; Fl. May.

U. S. Disp. 1301; Griffith, Med. Bot. 609. The leaves and twigs have a balsamic odour; the decoction was used in intermittent fevers, and, according to Schœpf, in cough, scurvy, and rheumatism; Boerhaave employed the distilled water in dropsy. The leaves are said to form an excellent irritating ointment, which has proved useful in

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rheumatism; and the oil has been given with success as a vermifuge. The wood is said by Michaux to be the most durable which our forests produce; fences for enclosures, rail posts, &c. are made of it.

Schubertia of later Bot. *Cupressus disticha*, L. and Ell. Sk.	Cypress. Grows in swamps in the lower portion of the State; vic. of Cha'ston; St. John's.

Mér. and de L. Dict. de M. Méd. Supplem. 229, 652; see the Cultivateur, ii. 668, for an article upon the Cypress. Recherches sur l'histoire des Cypress, Ann. de Hortic. xv. 37; Strauss, Mém. sur le Cypress, Montpellier, 1841; Mirbel, Abridg. des Voyages, xiii. 396; S. T. Cubieres' Mem. on the Cypress of Louisiana, (in French,) Paris, 1809. For a description of this remarkable tree, see Michaux, N. Am. Sylvia, Shec. Flora Carol. 484. The seeds are said to possess an odoriferous principle; a rich balsam of a deep red, inclining to black, is obtained by boxing the tree, and from the nuts and fruit, by distillation. It is applied to cuts and wounds, and is possessed of valuable balsamic properties; the cones are also balsamic, and the resin from them is diuretic, and carminative. This is undoubtedly one of the most valuable timber trees that we possess. The wood is soft, and rather fine-grained, resisting the action of weather, and the changes of temperature remarkably well; hence used for making the interior work of houses, posts, shingles, staves, &c. Barton mentions that boats from eight to twelve feet diameter, and eighty feet straight shaft, are made out of a single trunk. See, also, Ell. Bot. for a description; and also an elaborate paper in the April number of the Am. Journ. Science, for 1848, by Dr. Dickeson and Brown, a Committee from Louisiana, appointed by the Assoc. of Geol. and Naturalists.

Cupressus thyoides, L. Said to grow around the savannahs in Horry and Williamsburgh districts.

Ell. Bot. ii. 644; Griffith, Med. Bot. 610. The infusion is reputed to be stomachic, and in the warm state, diaphoretic. The wood is soft, fine-grained, light, and durable, and is adapted for purposes similar to the above.

Juniperus Virginiana, Linn. Cedar. Grows in upper and lower districts; Fl. March.

Big. Am. Med. Bot. iii. 49; Pe. Mat. Med. ii. 184; Fr. Elems. 195; U. S. Disp. 413; Mér. and de L. Dict. de M. Méd. iii. 698;

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Mich. N. Am. Sylvia, iii. 221; Am. Journ. Pharm. xiv. 235; Thacher's Disp. 247; Lind. Nat. Syst. Bot. 316; Griffith, Med. Bot. 607; Supplem. to the Dict. de M. Méd. 1846, 406; Bull. de l'Acad. Roy. de Méd. vi. 478; S. Cubieres' Mem. on the Red Cedar of Virginia, in French, Paris, 1805; Nicolet's Essai on the Physiol. and Chemistry of genus Juniperus; see Journ. de Pharm. xxvii. 309, and Bonastie's note on a volatile oil from the Virginia cedar, in Journ. de Pharm. xxi. 177, 1834.

The bark is employed in Abyssinia, under the name of bisenna. The expressed oil is very useful as an application to rheumatic pains; one bushel of the dried shavings, heated in an inverted iron vessel, will yield a half pint of oil. A decoction of the berries promotes diaphoresis, and is also beneficial in rheumatic pains, stiff joints, &c. It acts very much as savin, being stimulant and emmenagogue, and employed in catamenial obstructions; a cerate is made for keeping up the irritation and discharge from blisters; this is quite serviceable, and is prepared by boiling the fresh leaves in twice their weight of lard, with the addition of a little wax. The fungoid excrescences on this tree are thought to be anthelmintic. The wood is very durable, and is employed for posts, staves, &c.

Class III. ENDOGENS; OR, MONOCOTYLEDONS.

Marantaceæ. (*The Arrowroot Tribe.*)

Maranta arundinacea. Arrowroot. Cult. in S. C. for domestic use.

U. S. Disp. 449; Royle, Mat. Med. 585; Bell's Pract. Dict. 48. See authors. The root is grated, washed, and then dried in the sun on flat dishes.

Amarillidaceæ. (*The Narcissus Tribe.*)

Some of these are poisonous, and Lindley says that it is one of the few of the monocotyledonous orders in which any poisonous properties are found.

Agave Virginica, L. Called by negroes Rattlesnake's master. Grows in damp soils; coll. in Wassamasaw, St. John's; vic. Cha'ston.

Ell. Bot. i. 402. A domestic remedy for flatulent colic; used in Charleston Dist. for the bite of the rattlesnake.

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Amaryllis atamasco, L. Atamasco lily. Grows in damp soils; coll. in St. John's, Berkley; vic. Cha'ston.

Ell. Bot. i. 384. This is supposed to produce the disease in cattle called "staggers."

Pancratium maritimum, Walt.
" *Carolinianum*, L.
"Seen by Catesby in the Parachucla Savannah, St. Peter's Parish." Ell. Coll. on Cooper River, St. John's, Berkley.

Mér. and de L. Dict. de M. Méd. v. 179; Dioscorides, lib. ii. c. 168. Pliny also speaks of it, lib. xvii. c. 12. The bulbs are bitter and emetic, and are useful in dropsy. Loiseleur, Manuel des Pl. Indigènes, 19. In the experience of one writer, forty grs. of the powder produced vomiting five times.

HÆMODORACEÆ. (*The Blood-root Tribe.*)

Dilatris tinctoria, Ph.
Lachnanthes Ell. Sk.

Griffith, Med. Bot. 622. The root is astringent and tonic.

BURMANMACEÆ.

Tripterella cœrulia, L. Blue tripterella. Grows near Savannah and Purysberg; coll. in St. John's, Berkley, near Pinopolis; vic. Cha'ston; Fl. Nov.

Lind. Nat. Syst. Bot. 331; Nuttall in Acta, Philad. 723. A flavour like that of green tea is discernible in this plant.

IRIDACEÆ. (*The Corn-flag Tribe.*)

Iris versicolor, L., Var. *a* and *b*. Blue flag. Grows in bogs, morasses, and inundated land; coll. in St. John's; vic. Cha'ston; Fl. May.

Coxe, Am. Disp. 354; Lind. Nat. Syst. Bot. 333; U. S. Disp. 405; Big. Am. Med. Bot. 105; Bartram's Travels, 451; Cutler's Mem. Am. Acad. 405–6; Ell. Bot. 146; Mér. and de L. Dict. de M. Méd. iii. 659; Frost's Elems. 279.

The expressed juice is acrid, and has been employed as a local application; it is also purgative, and sometimes occasions distressing nausea, like sea-sickness, accompanied with prostration of strength. The plant is, however, more remarkable for its diuretic powers. It was prescribed by Dr. M'Bride with great success in dropsy, combining it with the button snakeroot (Eryngium yuccifolium). The

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proportions are as follows: Root of blue flag ℥j; button snakeroot ʒij; water ℔ss; which is to be boiled down to one pint, and taken in divided doses. See Bigelow. This does not disturb the stomach, and was used with success in cases of hydrothorax, combined with anasarca. Bartram said the root was considered by the Indians a very powerful cathartic, and it was found, in artificial ponds made for the purpose, near their villages. See his Voyage dans la partie sud de l'Amérique Septentrionale, ii. 322, and the Supplem. to Mér. and de L. 1846. According to Bigelow, its active chemical constituent seems to be a resin, which separates as a white precipitate when water is added to the alcoholic tincture. The plant is much employed in domestic practice in St. John's, Berkley, in dropsy.

Iris Virginica.

Griffith, Med. Bot. 625. It is said to possess properties similar to those of the I. versicolor.

BROMELIACEÆ. (*The Pine Apple Tribe.*)

Tillandsia usneoides, Linn. Moss. Grows within the tertiary districts of S. C. We have observed it as high up as Columbia.

Mér. and de L. Dict. de M. Méd. vi. 743; Journ. de Pharmacien, iii. 185. It is stomachic, purgative, and even diuretic. Employed in hemorrhoids, *op. cit.* We see no notice of it in the Am. works. Great use is made in S. C. of this plant, when dried, in stuffing chair cushions, mattresses, &c. It gives to the trees in winter quite a venerable and pleasing aspect.

ORCHIDACEÆ. (*The Orchis Tribe.*)

Some species of orchis are said to possess aphrodisiac properties. The roots, when boiled, are farinaceous and eatable, furnishing an article of food. Attention is invited to those growing in this State, among which are several beautiful species.

Bletia verecunda, N. Elliott is doubtful whether it grows in S. C. Mich. cult. it near Charleston; Fl. Aug.

Lind. Nat. Syst. Bot. 239. The cormus is said to be stomachic and tonic; see Browne's Jamaica.

Cypripedium pubescens, W. Yellow ladies' slipper; yellow moccason.

Griffith, Med. Bot. 640. It is employed by the Indians, and held in high estimation in domestic practice as a sedative and antispasmodic,

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acting like valerian in alleviating nervous symptoms; said to have proved useful in hysteria, and even in chorea. A teaspoonful of the powder is taken at a dose. *Op. cit.*, and Raf. Med. Fl. 140.

PALMACEÆ. (*The Palm Tribe.*)

Chamærops serrulata, L. Saw palmetto. Grows on the coast of S. Carolina, and at Blythe's Isl. in Geo. Mr. Elliott says that it extends also through the pine lands of that State.

Shec. Fl. Carol. 435. The pulp is very sweet, but is possessed of a purgative property, often producing a copious evacuation, attended with griping.

Chamærops palmetto, Mich. } Tall palmetto. Grows along the
Corypha palmetto, Walter. } sea-coast; vic. Cha'ston.

Ell. Bot. Med. Notes, i. 432.* The leaves are employed in the manufacture of hats, baskets, mats, &c. Forts, wharfs, and structures under water are made of the logs, which do not splinter. The cabbage, or expanded embryo, may be classed among the "most delicious vegetables produced on our tables." The tree, however, perishes when deprived of these. Griffith says (Med. Bot. 614) that the bark contains tannin.

MELANTHACEÆ. (*The Colchicum Tribe.*)

"Poisonous in every species."

Melanthium Virginicum, W. Grows in wet soils.

Griffith, Med. 641. In infusion, it is an effectual anthelmintic. It will operate as an active poison. The decoction, used as a wash, is a certain, but somewhat dangerous, cure for the itch.

Chamælirium Carolinianum, Willd. (K'th's En. Pl.) }
Helonias dioica, Ph. and Ell. Sk. }

Common blazing star. Grows in damp pine barrens; collected in St. John's, Berkley, Charleston district, near Pinopolis; vic. Cha'ston; Fl. July.

Lind. Nat. Syst. 348; Ell. Bot. i. 423; De Cand. and Dubug., 473, an. 1828; Matson's Veg. Pract. 218. The infusion is anthelmintic, and the tincture tonic. Prof. Ives recommends it as efficient in checking nausea and vomiting. The Indian women employed this plant in preventing abortion. It is used by the vegetable practitioners in debility of the digestive organs, given in doses of

* From this noble and characteristic tree is derived the well-known armorial emblem on the escutcheon of the State of South Carolina.

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a half teaspoonful of the powder, in warm water, three times a-day. The root, when chewed, relieves cough.

Amianthus muscætoxicum, Gray in K'th's En. Pl. } Fly poison.
Helonias erythrosperma, Mx. and Ell. Sk. }

Grows in rich shaded soils; collected in St. John's, Berkley; near Brunswick, Pl. (T. W. Peyre's, Esq. Vic. Cha'ston; Fl. May.)

Ell. Bot. 421. "A narcotic poison, employed in some families to destroy the house-fly. The bulbs are triturated, and mixed with molasses. The flies, if not swept in the fire, or otherwise destroyed, revive in the course of twenty-four hours." We would invite others to an examination of this plant as a remedial agent.

Veratrum viride, } Itch weed; Indian poke; white hel-
" *album*, Mich. } lebore. Grows in mountain streams.

Lind. Nat. Syst. 348. "An acrid, emetic, and powerful stimulant, followed by sedative effects." Big. Med. Bot. ii. 125. Dr. Tulby also says it is a deobstruent, or alterative, an acrid narcotic, an emetic, an epispastic, and an errhine; found very useful in gout, rheumatism, diseases of lungs, and some complaints of the bowels. Osgood, in the Am. Journ. Med. Sciences, states that it is perfectly certain in its operation, and is, in all respects, analogous to colchicum, which it should supersede. Bigelow states that, in his hands, it has arrested the paroxysm of gout, and has given relief in some cases of protracted rheumatism. It has been externally employed, in the form of ointment, in many cutaneous affections. Mr. Worthington, who made a full analysis, found veratria, gallic acid, extractive, &c. See Am. Journ. Pharm. N. S. iii.; Dr. Osgood's examination, Am. Journ. Med. Sci. 1835, and Am. Journ. Pharm. i. 202, N. S.; Griffith, Med. Bot. 644; Am. Journ. Pharm. N. S. iv. 89; Raf. Med. Fl. 585. The tincture or the extract is the best form of administration; the dose of the first is thirty drops; of the latter, one-third of a grain gradually increased. Kalm says that corn, soaked in a strong decoction, will be protected against the encroachment of birds; those that eat of it, becoming giddy, fall to the ground, and thus deter others. This plant is considered eminently deserving the attention of the profession.

Veratrum parvifolium and angustifolium. Both are found in S. C.; they are probably active, and should be examined.

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Gyromia Virginica, *Medeola* "	Linn. and Ell. Sk.	Indian cucumber; Virginian medeola. Grows in moist soils; generally found under beech trees; Fl. June.

U. S. Disp. 274. Pursh states that the root was eaten by the Indians. Dr. Barton thought it useful in dropsies. Bart. M. Bot.; Lind. Nat. Syst. Bot. 318. It enjoys some reputation as a hydragogue. Mér. and de L. Dict. de M. Méd. iv. 270; according to which, it is esteemed a very active diuretic. De Cand. Essai, 293.

Trillium sessile, L. Rare; grows in rich shaded soil; collected in St. John's, Berkley, near Wantoot Pl. Vic. Cha'ston. We have observed it on the Ashley road. Fl. May.

Lind. Nat. Syst. Bot. 348. "Roots generally violently emetic."

LILIACEÆ. (*The Lily Tribe.*)

Erythronum Americanum, L. " *lanceolatum*, Ph.		Dog's tooth violet; adder's tongue. Grows in the upper districts, and in Georgia. Sent to us from Abbeville, by Mr. Reed; Fl. April.

U. S. Disp. 318; Big. Am. Med. Bot. iii. 151; Mér. and de L. Dict. de M. Méd. iii. 147; Coxe, Am. Disp. 269; Bart. Flora N. Am. 133; Griffith, Med. Bot. The recent bulbs are emetic, when powdered and given in doses of xx—xl grs. When dried or cooked, they become eatable. The berries are said to be more active and certain in their operation than the root.

Allium Canadense, W. Meadow garlic. Grows in damp soils.

Griffith, Med. Bot. 653. It is employed as a substitute for the common garlic, and it is said to be fully as efficient. Most of the exotic alliaceous plants, the leek, onion, garlic, &c., are cultivated in S. C.

Aletris farinosa, L. Star grass; unicorn root. Diffused in damp pine lands; collected in St. John's; vic. of Cha'ston; Fl. July.

Big. Am. Med. Bot. iii. 92; Pe. Mat. Med. and Therap. ii. 121; Frost's Elems. 283; Mér. and de L. Dict. de M. Méd. i. 161; Lind. Nat. Syst. Bot. 353; Clayton's Phil. Trans. Ab. viii. 333; Cutler, Am. Acad. i. 435; Griffith, Med. Bot. 623. "The root is tonic and stomachic in small doses, but one of xx grs. occasions nausea, with a tendency to vomit." Lind. Nat. Syst. Bigelow knew of no plant

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exceeding this in genuine, intense, and permanent bitter. Pursh says it is an excellent remedy in colic; Cullen, in chronic rheumatism; and Dr. Thacher, in dropsical affections. Infused in vinegar, it is given in intermittent fever attended with dropsical accumulations. The decoction of the root and leaves in liberal doses is much employed in popular practice in the lower portions of this State. The root is quite resinous, and is supposed to contain a portion of extractive matter; ten grains act as a tonic. The tincture is the strongest preparation. It is also employed by the vegetable practitioners. See Howard's Imp. Syst. Bot. Med. 285.

Aletris aurea, Walter. Yellow star grass. Grows in similar situations; collected in St. John's, Berkley, near Pinopolis; vic. of Cha'ston; Fl. July.

Ell. Bot. Med. Notes, i. 39; Frost's Elems. 283; U. S. Disp. 67. It is purgative and nauseating in large doses, probably possessed of properties similar to the above.

Convallaria majalis. Lily of the valley. According to Elliott, grows on the highest mountains of S. C.

Bull. Plantes Vén. de France, 164. The powder of the leaves is said to be a very active sternutatory. Dém. Élém. de Bot. by Gillibert, ii. 6. Some practitioners order the powder of the leaves in epileptic affections, depending upon verminous influence. The flowers furnish a good deal of essential oil: "We have tried, with success, a powder of the flowers in inveterate pain of the head." Trans. from *op. cit.* This was taken in the nostrils as snuff. Dr. Wood, in the U. S. Disp. 1249, confirms the assertion in reference to the power the flowers possess of exciting sneezing. They have a delightful odour, resembling that of musk, and when dried and powdered, are much employed as a sternutatory, acting sometimes quite violently. According to Mérat, they are esteemed in nervous headaches and vertigo; and, when pulverized, are emetic and purgative. See Diss. Botanico Med. Inaug. de Lilium Conval. 1718, Al torfii; Diss. Inaug. at Gottingen, 1757; one by Misdorf, in 1742; and another by Schultze, in the same year. Shec., in his Flora Carol. 431, states that the dried flowers are narcotic. "The extract of the root and flowers possesses purgative properties similar to aloes." The poultice of the root enjoys some celebrity for taking away the marks of bruises, &c. With the addition of lime to the leaves, a beautiful green colour is obtained. The dose of the simple distillation of the flowers is ℥iv: when powdered ʒj; of extract, grs. ii—iii.

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Convallaria multiflora, } Grows in
Polygonatum multiflorum, Desfont. and Ell. Sk. } damp soils.

U. S. Disp. 1249. This is used in similar cases with the European species (the Con. polygonatum), the root of which was employed as a cosmetic, and which, according to Hermann, is a good remedy in gout and rheumatism. See Nouv. Journ. de Méd. v. 209. Thirty grains of the dried root is given in Russia, as a preventive against plague. Bull. des Sc. Méd. v. 209.

Uvularia perfoliata, L. Grows in damp soils; collected in St. John's; Fl. June.

Griffith's Med. Bot. 641. The roots of the different species are sub-acid and mucilaginous when fresh; and a decoction of them has been employed as a domestic remedy in sore mouth, and in affections of the throat; also considered as alexipharmic in snake bites. The roots are, however, edible when cooked, and the young shoots are a very good substitute for asparagus.

Uvularia sessiliflora, L. Collected in St. Stephen's Parish, in damp soils; Fl. July.

Similar in properties to the above.

Asparagus officinalis, L. Ex. Nat. on banks of Cooper River; vic. of Cha'ston. Bach. Fl. May.

Mér. and de L. Dict. de M. Méd. Supplem. 1846, 73. A preparation in the shape of a syrup was much in vogue as a powerful sedative in palpitation of the heart, used by Broussais. Journ. de Pharm. xix. 667. Its diuretic property is well known. Revue Méd. 1838, 409. See M. Lodiberts on its culture, and an account of the alcoholic fermentation from the branches, in the Journ. de Méd. Militaire.

COMMELINACEÆ. (*The Spider-wort Tribe.*)

Commelina communis, Pursh. Grows in pine barrens; collected in St. John's; vic. of Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. ii. 272. In Cochin China, it is said to be employed as a refrigerant and relaxant; prescribed in constipation and strangury. The flower is of a beautiful blue, and Kæmpher says that a colour like ultramarine might be obtained from it.

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ALISMACEÆ. (*The Water Plantain Tribe.*)

All are aquatic plants, and many contain a fleshy rhizome which is eatable.

Sagittaria sagittifolia, Mich. " *latifolia*, W.	Arrow head. Grows in rice fields; collected on Cooper River. We have specimens from Sumter district; vic. of Cha'ston. Bach. Fl. July.

Mér. and de L. Dict. de M. Méd. vi. 153; Journ. Comp. des Sc. Méd. xix. 143. The leaves are acrid, and it is proposed to employ them in dispersing scrofulous ulcers. Dém. Élém. de Bot. ii. 416. The Chinese are said to cultivate it on account of the bulbous roots, which are eaten. It was employed as food by the Indians. Wade's Pl. Rariores, 80. It is said that the leaves, applied to the breast of nursing women, will tend to dispel the milk. Griffith's Med. Bot. 619. The fecula is like arrowroot (Marant. arund.), and has been used for similar purposes.

JUNCEÆ. (*The Rush Tribe.*)

Juncus communis, Mey, in Kunth's En. Pl. " *effusus*, Linn. and Ell. Sk.	Soft rush; bulrush. Grows in bogs and morasses; Fl. May.

Lind. Nat. Syst. 531. Cultivated in Japan for making floor mats, chair bottoms, &c. It is sometimes employed in S. C. for similar purposes. The fruit, when dried and oiled, will serve as a wick.

SMILACEÆ. (*The Smilax Tribe*).

Smilax Pseudo-China, L. China briar. Grows in swamps, along streams; collected in St. John's, Berkley; Fl. May.

Ell. Bot. Med. Notes, ii. 700; U. S. Disp. 634; Pe. Mat. Med. and Therap. 133; De Cand. Prodrom. i. 351; Frost's Elems. Mat. Med. 228. The decoction is alterative; in large doses, emetic. It is much used in portions of this State, in the composition of diet drinks, and it is considered one of the best substitutes for sarsaparilla. Griffith, Med. Bot. 660, states that the Indians employed the fecula of this, as well as that of the S. caduca, laurifolia, and tamnoides—all indigenous to South Carolina.

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Smilax sarsaparilla, L. } Rich soils; Abbeville district; Fl.
" *glauca*, Walt. } July.

U. S. Disp. 634; Woodv. Med. Bot. 161. This does not appear to be the officinal sarsaparilla, though it probably shares the alterative virtues belonging to the genus. Thornton's Fam. Herbal, 241; Journ. de Pharm. xvi. 38; Frost's Elems. Mat. Med. 223. It is supposed to be possessed of undoubted efficacy, given in diet drinks, and alterative mixtures, combined with the China briar, and used in syphilis and chronic rheumatism. Mér. and de L. Dict. de M. Méd. iii. 79; Humboldt's Voyage, viii. 378; Analysis in Journ. de Chim. Méd. i. 215. A principle has been derived from it, called smilacine. Journ. de Pharm. xvi. 501, and xviii. 324. From Bartley's examination, in the Edin. Med. Journ. xvi. 473, the virtues appear to reside in the cortical part; hence, it is best extracted by the cold infusion. Biblioth. Méd. xxvi. 119. According to these writers, it is considered a powerful sudorific and alterative, indicated when you wish to produce diaphoresis, as in rheumatism of the joints; and this agrees with the experience of those who have tried it in this State. J. Pope, Recherches upon the different species of sarsaparilla, in Journ. Gén. de Méd. xci. 300, and Thunberg's Mem. on the quantity of extractive matter furnished by the species.

Smilax caduca, L. Around ponds, and in rich shaded soils; collected in St. John's; vic. of Cha'ston; Fl. June.

Mér. and de L. Dict. de M. Méd. vi. 375. Some have asserted that it furnishes caoutchouc. See Hist. Nat. Pharm. ii. 590.

Smilax tamnoides, L. Grows in dry soils; collected in St. John's; vic. of Cha'ston; Fl. June.

Mér. and de L. Dict. de M. Méd. vi. 384. The root of this also, says Mérat, is employed in the form of decoction to purify the blood.

Smilax herbacea, L. Grows in rich wooded soils; collected in St. John's; vic. of Cha'ston; Fl. June.

This species has been used for its alterative properties.

Smilax ovata, Ph. and Ell. Sk. Grows on the sea shore, Ell.; vic. of Cha'ston; Fl. June.

Ell. Bot. Med. Notes, ii. 698. Remarkable for the fragrance of its flowers.

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DIOSCOREACEÆ. (*The Yam Tribe.*)

Dioscorea villosa, L. Wild yam. Grows in damp soils; collected in St. John's; vic. of Cha'ston; Fl. July.

Griffith's Med. Bot. 659. The decoction of the root, according to Riddell, in a late paper, Synops. Flo. West St. 93, is eminently beneficial in bilious colic: ℥j is added to one pint of water, and half of this is taken at a dose. He says it acts with great promptitude, and that Dr. Neville places much reliance on the tincture as an expectorant; it is likewise diaphoretic, and in large doses emetic. Attention is invited to its employment.

ARACEÆ. (*The Arum Tribe.*)

An acrid principle generally pervades this tribe, existing in some of them to a high degree.

Arisæma atroreubens, Blum. in K'th's En. Pl. } Wake robin;
Arum triphyllum, L. Ell. Sk. } Indian turnip; dragon root.

Grows in rich soils; collected in St. John's; vic. of Cha'ston; Fl. June.

Eberle, Mat. Med. ii. 437; Chap. Therap. and Mat. Med. ii. 41; U. S. Disp. 123; Pe. Mat. Med. and Therap. ii. 78; Big. Am. Med. Bot. i. 52; Am. Journ. Pharm. xv. 83; Thacher's U. S. Disp. art. A. triphyllum, 153; Cullen, Mat. Med. ii. 211 and 554; Mér. and de L. Dict. de M. Méd. i. 460; Coxe, Am. Disp. 121; Schœpf, Mat. Med. 133; Rush, ii. 301; Barton's Collec. 29; Shec. Flora Carol. 273; McCall, in Phil. Med. Journ. ii. 84; Cutler, Am. Acad. i. 487; Lind. Nat. Syst. Bot. 364; Matson's Veg. Pract. 295, and Thompson's Steam Pract. It is said to be similar in its action to the A. maculatum. Dr. Meara affirms that it does not act on the general circulatory, but only on the glandular system, which it stimulates greatly, and the secretions of which it augments. Dr. Wood says it stimulates the secretion of the skin and lungs also. It is used advantageously in diseases of the mucous membranes, particularly pertussis and asthma. "In the chronic asthmatic affections of old people, it is a remedy of very considerable value." The powder of the fresh root, made into a paste with honey or syrup, and placed in small quantities upon the tongue, so as to be gradually diffused over the mouth and throat, is said to have proved useful in the aphthous sore-throat of children. Dr. Thacher employed it in this affection, and adds that it is of approved efficacy in rheumatism.

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"Milk in which the acrid principle of the A. triphyl. has been boiled has been known to cure consumption!" De Cand. cit. in Lind. The sliced root has been used as an application for poisoning by the ivy (Rhus). Lindley remarks of some of this class, "that the spadixes disengage a sensible quantity of heat when they are about to open." Agardh considers that the acrid principle, which, notwithstanding its fugacity, has lately been obtained pure, is of great power as a stimulant. In corroboration, we would mention our having produced vesication, merely by rubbing the stem of the Arum Walteri (S. C. species) in contact with the unbroken skin; and we observe that both species are very irritating to the fauces. By chemical analysis (Am. Journ. Pharm. xv. 83) it contains, besides the acrid principle, from ten to seventeen per cent. of starch, which may be obtained from it as white and as delicate as from the potato; also albumen, gum, sugar, extractive, lignin, and salts of potassa and lime. Bigelow states (i. 59) that the starch is prepared by pouring repeatedly portions of water over the fresh root, reduced to a pulp by grating, and placed on a strainer, the farinaceous part being carried through, and leaving the fibrous behind. Dr. M'Call, of Georgia, found it to yield one-fourth part its weight of pure amylaceous matter, which is white, delicate, and nutritive. See also the experiments of Bigelow to extract the acrimonious principle of the fresh root.

Peltandra Virginica, Raf. (Kunth, En. Pl.) *Arum Virginicum*, L.	Common in swamps; collec. in St. John's, Berkley; vic. of Charleston; Fl. May.

Stearns' Am. Herbal, 133. Property probably similar to those of the above. "Powerfully stimulant, diuretic, and diaphoretic. Stimulates the solids, promotes the secretion of perspiration, urine, &c.; good in languid, phlegmonous habits, in relaxation and weakness of the stomach, loss of appetite, in jaundice, hysterical and hypochondriacal complaints, rheumatism, pains, and obstinate headaches unattended with fever." Dose grs. x, with ℈ii gum Arabic, ℈i of spermaceti, and sugar grs. viii.

Arum maculatum. We find that this species is not a native of

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this State; but the indigenous A. triphyllum is said to possess precisely the same properties; so we will allow it to remain.

Bull. Plantes Vén. de France, 83. "The leaves, being eaten by three children, produced horrible convulsions," swelling of the tongue, &c. One author mentions that he uses the root with great success in rheumatic pains, in doses of grs. vi—ʒj of fresh root, three times a-day. The emulsion is more sedative. The dry root is quite nutritious, serving as an article of food. Catalogus Plantarum, 28. The decoction of the root with honey is a powerful expectorant, and is useful in asthma. (Expectorat enim validissime crassas lentasque excreationes.) The Catalogus Plantarum of Ray, furthermore, expresses this high opinion, "Remedium est præstantissimum et minime fallax adversus venenum et pestem, asthmaticos maxime juvat, hernias curat et urinam ciet." See also the Historia Plantarum Raii, p. 1208. The root, dried and powdered, has been sold as a cosmetic, under the name of cypress powder; said also to possess a soporific quality, and to be used in washing linen. Linn. Veg. Mat. Med. 168; Woodv. Med. Bot. 75. The recent root, according to Orfila, will cause the death of a dog in thirty-six hours. Toxicol. 298; Ancien Journ. de Méd. xxxiv. 529. See Dict. des Drogues, i. 355, for chemical analysis. Portland sago is made from the root. Encycl. Plants, 800. The bad effects resulting from the use of the arum are alleviated by the administration of butter-milk, and oily liquors. Shecut, in his Flora Carol., speaks of its great reputation as an effectual remedy in cachectic cases, in weakness of stomach, and fixed rheumatic pains. The fresh root, externally applied, is a good substitute for Spanish flies. Dr. Lewis, in the Fam. Herbal, 751, asserts that neither water nor spirits extract its virtues; the fresh root being best administered in substance, in the form of a bolus or emulsion, or by heating it up with resin or gum, and keeping in pill. Geoffroi alludes to it as a valuable stomachic, for restoring lost appetite; useful in chlorosis, jaundice, and hysterical affections. He says that, by boiling the root in vinegar, it becomes powerfully diuretic. Bergius reports the root as of great service, mixed with an alkaline aromatic, in cases of obstinate periodical headache, when the pulse is slower than natural without fever. Journ. de Pharm. xii. 158. Mérat, in the Dict. de Mat. Méd., endorses the opinions generally expressed above. U. S. Disp. 123; Big. Am. Med. Bot. i. 52.

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Orontium aquaticum, Mx. Golden club. Roots often immersed; common in lower country; collected in St. John's; Fl. May.

Lind. Nat. Syst. 365. "The root is acrid, but becomes eatible by roasting." Both the seeds and roots were eaten by the Indians.

TYPHACEÆ. (*The Bullrush Tribe.*)

Typha latifolia, L. Cat-tail; reed mace. Morasses and stagnant waters, often immersed; collected in St. John's; vic. Cha'ston.

Mér. and de L. Dict. de M. Méd. t. vi. 795; Journ. de Chim. Méd. iv. 179; Journ. de Pharm. xii. 564. This plant receives an extended notice in European works. The root is eaten as a salad. See also Lightfoot's Fl. Scotica, ii. 339. A jelly is also extracted from it. Aublet assures us it is good in gonorrhœa and chronic dysentery. See an analysis in Journ. de Pharm. xii. 564, and xiv. 221. Little crystals of phosphate of lime are found in the stems. It is said also to be abundant in fecula. Découv. des Russes. iii. 450; Gmélin, Flora Siberica, i. 25–139. See Vignal's Essay on the treatment of wounds with the pollen or aigrettes of the typha, which it is proposed to use as a substitute for cotton, (in French.) Paris, 1803. The bark has been employed in the fabrication of hats, and with cotton in making gloves; and some have recommended it in making China paper. See the Dict. de M. Méd. The down has been used to stuff mattresses. Linnæus informs us that the coopers in Sweden employ the stalks to bind their casks with. In England, they use the Scirpus lacustris, and in Italy, the Carex acuta (all S. C. species, which see); employed to fasten the timber in the joints. The stalks are opened longitudinally, and placed between the interstices, so as effectually to prevent the escape of fluids. Those who manufacture turpentine and rice barrels might find these plants of much service in this respect—serving the purpose much better than the strips of wood shaving generally employed to render the seams tighter. We would invite further attention to the typha for the several purposes alluded to.

ACORACEÆ.

Acorus calamus, L. Sweet flag; calamus. Diffused in bogs and morasses; we have collected it in Fairfield and in Charleston districts; vic. Cha'ston. Bach.

Le. Mat. Med. i. 251; Pe. Mat. Med. and Therap. ii. 76; Royle, Mat. Med. 602; Hoffmann's Obs. Phys. Chim. i. obs. i.; Ell. Bot. Note, i. 403; U. S. Disp. 145; Ed. and Vav. Mat. Méd. 281; Ball.

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and Gar. Mat. Med. 481; Bergii, Mat. Med. 287; Mér. and de L. Dict. de M. Méd. i. 63; Woodv. Med. Bot.; Ann. de Chim. lxxxi. 332; Coxe, Am. Disp. 18; Shec. Flora Carol. 96. This is a very pleasant, aromatic stimulant and stomachic; esteemed as a stimulating tonic in atonic conditions of the stomach and bowels; in the East, as a powerful aphrodisiac, and carminative. Ed. and Vav. state that it has been administered successfully in intermittent fever: "On l'a beaucoup vanté pour combattre les symptomes cérébraux qui accompagnent la séconde période des fièvres dites atoxiques." Dr. Thompson says, from his own experience, he finds it one of the most useful adjuvants to bark and quinine; given also, combined with magnesia, in the flatulent colics of infants. In the Supplem. to Mér. and de L. 1846, 10, Dr. Endelicher assures us that the root is an excellent remedy in chronic gout: "qu'elle apaise les douleurs, qu'elle assouplit les articulations"—administered in powder, from 18 to 20 grs. every two hours. Annal. de Méd. and note, sur quelques plantes de l'Aube, Mém. de l'Aube, 1841. The fresh root, candied, is said to have been employed in large quantities as a preservative in epidemic diseases. Thornton's Fam. Herb. 354. The root is used in vertigo. Linn. Veg. M. Med. 64; Griffith, Med. Bot. 620. See Anal. by Trommsdorf; Ann. Clinique, xvii. From which, it appears to contain volatile oil, resin, extractive, &c. Thompson, in his M. Med., says that the oil differs from other volatile oils in not dissolving iodine.

PISTIACEÆ. (*The Duckweed Tribe.*)

Spirodelia polyrrhiza,	Schleid. in Kunth's En. Pl.	Water flaxseed. Santee Canal; Fl. July.
Lemna "	W. and Ell. Sk.	

Lightfoot's Fl. Scotica, ii. 538. The "leaves sink to the bottom of water in winter, and rise in the spring."

GRAMINACEÆ. (*The Grass Tribe.*)

Well known for their great value for many purposes.

Anthoxanthum odoratum, L. Probably imported; found near Savannah River, and around Charleston.

Mér. and de L. Dict. de M. Méd. i. 316 and 514. It has been used as a tonic and cordial. The fragrance, according to the analy-

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ses of Vogel, depends upon the presence of benzoic acid. Lind. Nat. Syst. 319.

Panicum dactylon, L. } Bermuda grass. Common in the
Digitaria " Ell. Sk. } low country; vic. Cha'ston; Fl. Aug.

Dém. Élém. de Bot. iii. 289. The root is used in the shape of a ptisan, as an aperient and diuretic. The extract is said to purge like manna. It is eaten by dogs to procure vomiting. The plant contains a nutritive principle.

Panicum Italicum, Walt. Large spiked panicum. Grows in ponds and damp soils; vic. Cha'ston; Fl. Sept.

Dém. Élém. de Bot. iii. 286. Detersive and mucilaginous; eaten by birds, but said to be injurious to man. Mér. and de L. Dict. de M. Méd. v. 182.

Phleum pratense, Linn. Timothy grass. Grows on Sullivan's Island. It is supposed to be a valuable grass.

Saccharum officinarum. Sugar cane; cultivated in S. C.; growing tolerably well in the lower portion of the State. Its value is well known. The juice is said to be an antidote for poisoning by arsenic, and it might be temporarily substituted for the hydrated sesquioxide of iron.

Oryza sativa. Rice. Cultivated extensively in the lower portion of the State, on the Cooper and Santee Rivers.

U. S. Disp. 1268. The "seeds, being wholly free from laxative power, are adapted to cases of weak bowels, in which there is a strong tendency to diarrhœa." The decoction of rice water is very applicable, as a nutritive drink, to fevers, and inflammatory affections of the stomach, lungs, and kidneys. This plant is well known, and largely used as an article of food, and for exportation. See Authors for references. Carolina rice was found by Braconnot to contain 85.07 per cent. of starch, 3.60 gluten, 0.71 gum, 0.29 uncrystallizable sugar, 0.13 of fixed oil, 4.80 veg. fibre, 5.00 of water, and 0.40 of saline substances. Dr. Wood (U. S. Disp.) discredits the opinion, expressed by some, that a rice diet produces injurious effects on the eyes—the condition of myopy, for instance. During a residence of some years in both sections of South Carolina, our observations have been directed towards this point with special attention. We can safely assert that, in the lower country of this State

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—where rice has long been a favourite article of food—the whites partaking of it every day, and, in some form, at almost every meal, the number of near-sighted individuals bears a proportion of at least ten to one over those residing in the upper districts, where it is well known that its use has only lately been generally introduced. So far as our experience goes, as well as that of many others, of whom inquiries have been made, scarcely an example can be found of it in the latter portion of the State, which is distinguished from the other by pretty accurately defined limits. If such a relation does exist between the quality of the ingesta and the greater convexity of the cornea, which further investigation and comparison must confirm or reject, it is exceedingly curious, there being as yet not even a hypothesis accounting for the modus operandi. It has also been indistinctly assumed to depend upon a long course of luxurious living in the ancestors; and another difference characterizing these divisions of the State tends to corroborate this opinion, and perhaps to throw some light on the existing disparity, with respect to the power of vision. This is found in the fact that the seaboard of South Carolina was earliest settled, by the Cavaliers and Huguenots, comprising many individuals of large means, who have for several generations been enabled to indulge in most of the comforts and luxuries of life. The case was otherwise with respect to the upper portions, where the inhabitants for some time lived necessarily in a more plain and frugal way. Any objections to the first ground, founded on the assertion that the negroes in the lower country are not affected in this way, may be anticipated by the reply, that we seldom or never *know* when there is, among them, such defect in the power of vision; and, besides, they are in fact not generally furnished with rice as an article of food. The condition of things in Hindostan and China might throw some light on this question.

Spartina juncea, Schreber, Ell. Sk. *Limnetis* of some Bot. — White rush; rush-like spartina. "Grows in the salt water marshes;" vic. Cha'ston; often immersed; Fl. Aug.

Dém. Élém. de Bot. vi. 655. The flowers are purgative. The oil from the young branches is caustic, and is employed against ringworm, and in cutaneous eruptions generally.

Spartina glabra, Muhl. Cat. Salt marsh grass.

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Ell. Bot. 96. This plant is greedily eaten by horses and cattle; and, though it affords a good pasturage for out-door stock, yet it is remarkable for a strong, rancid, and peculiar smell, affecting the breath, the milk, butter, and even the flesh of animals that feed upon it. It is also valued as a manure.

Avena sativa. Oat. Cultivated in S. C.

See authors. Used as a food for horses. A gruel may be made of it, which is somewhat laxative, and which is employed in fevers.

Glyceria fluitans, *Poa* of Ell. Sk. } Water fescue. Grows in
Festuca of Linn. } the upper districts; Fl. Aug.

Dém. Élém. de Bot. iii. 307. It furnishes a species of manna.

Bromus secalinus, W. Chess. Dr. M'Bride found it in St. John's, Charleston district; Fl. July.

Flora Scotica, 1087. This is the plant which is said to render the seeds of wheat bitter. Mér. and de L. Dict. de M. Méd. i. 672; Journ. Gén. de Méd. lxxxviii. 82; Shec. Flora Carol. 297. A good green dye is extracted from the flowers. Griffith, Med. Bot. 662. M. Cordier finds that it is bland in its action; it was once thought to possess purgative powers.

Bromus purgans, L. Cathartic bromus. Mountains of S. C.; Fl. August.

Mér. and de L. Dict. de M. Méd. i. 672. It was said to be anthelmintic, and that forty grains would produce vomiting; effect uncertain.

Dactylis glomerata, Linn. American orchard grass; clustered dactylis; James' Island, near Cha'ston; Fl. July.

Shec. Flora Carol. 493. This is the species instinctively sought after, and swallowed by dogs and cats, when they are inclined to vomit, or to envelop the splinters of bone collected in their stomachs. "It is a valuable grass, and ought to be cultivated with care."

CYPERACEÆ. (*The Sedge Tribe.*)

They contain very little fecula or sugar.

Cyperus articulatus, Mich. Jointed cyperus. "Grows on Hilton-head Island, at Ogechee," Ell.; vic. Cha'ston; Fl. July.

Mér. and de L. Dict. de M. Méd. ii. 567. In Guinea, this is considered one of their remedies for worms.

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Cyperus odoratus, L. River banks; vic. Cha'ston; Fl. Aug.

Lind. Nat. Syst. Bot. 385. The root has a warm aromatic taste, and the infusion is given in India as a stomachic. Ainslie, Mat. Med. Ind. 288.

Cyperus virens, Mx. Sharp grass. If incautiously drawn through the hand, the stem will cut severely with its sharp angles.

Cyperus hydra, Mx. Nut grass. Prof. Holbrook informs us that Gen. Pinckney told him it was introduced, though Elliott does not mention it. Its reproductive power is marvellous, and hence it is a great scourge to the planter, depreciating the value of land. It is, with difficulty, eradicated by constant hoeing; by this process, in its constant efforts to throw its leaves to the light, the root becomes exhausted. The experiment has been successfully tried by J. M'Queen, Esq., of Geo. Ell.

Scirpus maritimus, L. " *macrostachyus*, M.	Maritime scirpus. Marshes, "Little Ogechee bridge, 7 miles from Savannah," Ell. Coll. in St. John's; vic. Cha'ston; Fl. June.

Dém. Élém. de Bot. ii. 292. Aromatic and slightly nutritive.

Eleocharis palustris, R. Brown. *Scirpus* " Linn. and Ell. Sk.	Bog scirpus; marsh club rush. Grows in rice fields, often immersed; coll. in St. John's; vic. Cha'ston; Fl. June.

Mér. and de L. Dict. de M. Méd. vi. 262. Lemery says the roots are astringent, and that they are employed in decoction in diarrhœa and hemorrhage. It is much used in Europe in the manufacture of chairs, mats, and delicate work, and we would invite the attention of those engaged in similar operations in this country.

Carex acuta, L. Grows in bogs in the upper districts, often immersed. Lightfoot. Fl. April.

Fl. Scotica, ii. 566. In Italy, the leaves are used by glass-makers to bind their wine flasks, and in the manufacture of chair bottoms; also by coopers, to place between the seams of cask heads

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to render them air-tight. The Typha latifolia and Scirpus lacustris, both found in S. C., have been used for this purpose. (See these plants.) The makers of turpentine barrels in this State might find them convenient and valuable, supplying the place of the strip of wood shaving we have seen some of them employ.

Class IV. RHIZANTHS.

Class V. ACROGENS; OR, FLOWERLESS PLANTS.

The leaves of ferns, one of the subdivisions of this class, generally contain a thick, astringent mucilage, with a little aroma; on which account they may be considered pectoral and lenitive. Lindley states that almost any of them may be substituted for the Adiantum pedatum and A. Capillus Veneris, which especially abound in these products. We have observed, in the leaves of the Os Munda regalis, and of several other species, a taste strongly resembling that of spermaceti.

Polypodiaceæ.

Pteris aquilina, L. Grows in damp pine lands; sent to us from Abbeville dist. by Mr. Reed; coll. in St. John's; vic. Cha'ston; Fl. July.

Dém. Élém. de Bot. iii. 347. The root is vermifuge and astringent; and is said to be a remedy for the tape-worm, ℥j of the decoction being used at a dose. This plant contains a very large proportion of alkali. Fl. Scotica, 656. Its ashes will yield double the quantity of salt afforded by any other plant—forming, therefore, a manure adapted to potatoes. Made into balls with water, it is employed to wash linens. The astringency is so great as to render it useful in preparing leather and kid gloves.

Osmundaceæ.

Osmunda regalis, Mx. Royal fern; flowering fern. Grows in damp soils; coll. in St. John's; Fl. May.

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Wade's Pl. Rariores, 87. Dr. Stokes says that impressions of this fern are observed in nodules of iron-stone in the Colebrookdale Iron Works, and that it is the only species of an indigenous (European) vegetable which has ever been found in a fossil state, all others being of American growth. Withering, Supplem. to Mér. and de L. Dict. de M. Méd. 1846, 536. It is sometimes employed in dropsy, as an astringent in injuries, and by Dr. Heidenreich in the radical cure of hernia; he reports 50 cases (guéries radicalement) after the method of Simon: giving the root in wine internally, and placing upon the hernial ring compresses which have imbibed the decoction of the plant. Journ. de Chim. Méd. viii. 395, 2d series, 1842. In the Dict. Univ. de M. Méd. v. 113, its employment in this affection was spoken of. Herman boasts of it as having a direct action upon the intestinal canal (bas ventre), which it purges mildly in doses of ʒij—iv of the powder. It acts upon the bile, augments digestion, and strengthens chilification. The extract has been thought peculiarly suited to cases of children affected with caries, mixed in milk or water, and continued for some time. Aubeil's Obs. sur l'emploi de l'Osmond, Journ. Gén. de la Soc. de Méd. xlvi. 59, 1843. Lindley, in his Nat. Syst. Bot. 400, states that it "has been employed successfully in doses of three drachms in the rickets." The leaves have been selected to make cradles for delicate children, from some supposed good effects derived from their use. Encyclop. Meth. Botanique, iv. 652. The strong resemblance which we have noticed between the taste of this species and spermaceti is quite marked. The plant seems scarcely to be known in this country, and we observe no notice of it in the American works.

Fungi or Fungaceæ. (*The Mushroom Tribe.*)

These, as well as the Lichens, Musci, and Algæ, found in South Carolina, have not as yet been arranged so that we can make any information concerning them available. There are, however, so many species among these allowed the possession of medicinal virtues of a high order, as well as of great value in the arts, that a rich field is open to the investigator in these interesting departments of natural history and indigenous medical botany. And, although the cryptogamic Flora of this State has not yet been examined and arranged by a Greville, a Fries, or a Nees von Eisenbeck, there are at present those of ability and industry engaged in the task, whose contributions will ere long be equally honourable to themselves, their

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native State, and the progress of science. Already have we learned, by inquiry, of the existence in one section of this State of that remarkable Norwegian fungus (the Amanita muscaria), whose curiously transmitted intoxicating property is the source of so much interest.

FRANCIS PEYRE PORCHER, M. D.

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ALPHABETICAL INDEX

TO THE

REPORT OF THE COMMITTEE ON THE MEDICINAL PLANTS OF SOUTH CAROLINA.

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J.—2.

REPORT

ON THE INDIGENOUS MEDICAL BOTANY OF MASSACHUSETTS.

By Stephen W. Williams, M. D.

PRELIMINARY REMARKS.

The plants of Massachusetts have been pretty thoroughly investigated by able botanists. Although the State embraces but a small extent of territory, and much of the soil is rocky and barren, and although she is situated in a pretty high northern latitude, for the temperate zone, she, nevertheless, has some as warm weather as is to be found in the sunny regions of the south, though not of so long continuance. Many, if not most, of our plants are the same with those of the climate of the south and southwest. There are but few of the plants which have been described by botanical writers, as growing in the southern and southwestern States, which are not found in Massachusetts. Some of our western and southwestern States, however, are still in their infancy, and the natural history of them has not been much investigated. The admirable resolution of the Association for appointing a committee to investigate the medical botany of the various parts of the United States, will do much towards drawing out and developing the comparatively unexplored resources of our country in this department of science. Although considerable has been done in this respect, a great deal yet remains to be done, and the time will probably ultimately arrive, when many of what are now termed "worthless weeds, and useless plants," will be considered invaluable medicinal agents; and many which are now considered medicinal, will be considered comparatively of little value. The chaff will be sifted from the wheat, and a proper value will be

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attached to the most important medicinal plants. The subject, as yet, is almost in embryo, and much light will be thrown upon it by the investigations of our future medical botanists.

It is to the researches of regular scientific physicians, that much is to be expected in this department of our profession. The self-styled botanic physicians, who make pretensions to the exclusive use of vegetables, in their empiric practice, employ but few articles in comparison with educated physicians, and with the exception of their divine lobelia, one of the most poisonous substances known in the vegetable or mineral kingdoms, their remedies are generally very inert. Nearly all the knowledge which they ever obtained of them, has been from the writings of regular physicians, and from our standard works upon Medical Botany and Materia Medica. We have no hopes that our vegetable materia medica will receive any valuable accessions from them. I have seen but in a very few of their writings, even a scientific botanical description of any of their boasted remedies, or even a reference to the natural orders of Jussieu or Lindley, or of the sexual system of Linnæus. The English or vulgar name generally is only given, which may mean one thing, or may mean another, but generally ends only in jargon and confusion, for the same English name often applies to a dozen different plants.

The only extensive early writer upon the medicinal plants of Massachusetts, which I recollect to have seen, was Dr. Cutler, who published an elaborate article upon the subject, in the Transactions of the American Academy of Arts, Boston, not far from the year 1790. The work is not now before me, and I may not be *exactly* correct in relation to the date. Separate monographs, or papers, have been published in the medical journals upon individual medicinal plants, but no regular system of botany was published in this section of the country, as far as I can ascertain, till some time after the commencement of the present century, when Waterhouse published his Botanist. Eaton published his Botany of the Northern States, not far from the year 1812 or 1814. He described almost all the plants then known in the northern part of our Union, according to the Linnæan scheme, with a reference to their natural orders. He speaks of the medicinal properties of all the plants which he describes, by referring them to the classes of Linnæus, and to his observation "that plants in the same class and order possess the same medicinal properties." If this observation is correct, then all plants are medicinal, and the poisonous hemlock possesses similar proper-

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ties with the aromatic caraway and anise. The work of Eaton has passed through several editions. Our indefatigable and learned Bigelow, about the same time, published his valuable and most interesting work upon the Plants of Boston. This learned work has passed through several editions. His more splendid work upon Medical Botany, was commenced not far from the year 1815, containing elegant coloured engravings of several of our most valuable medical plants. This, next to Wilson's Ornithology, was considered the most splendid work upon natural history which had been published in America. Barton, of Philadelphia, about the same time commenced a Medical Flora upon much the same plan, with superb engravings, in quarto. This, with that of Bigelow, was discontinued for the want of patronage, after the publication of three volumes. Muhlenberg, Pursh, Bartram, and the elder Barton, had published interesting works upon the subject of botany, and also Elliott, of South Carolina.

I had examined these works with great attention, and also several foreign works, and among the rest, Sowerby and Curtis. I became enamoured with the study of botany, and about the year 1816, in connection with Edward Hitchcock, now President of Amherst College, and Dr. Dennis Cooley, now of Michigan, who was then a student in the office of my father and myself. With them I examined the valleys and the mountains of my native town of Deerfield, for the purpose of discovering and investigating their vegetable and mineral productions. Our meadows, containing about two thousand acres, receive the deposit and wash of the Green Mountains in Vermont, as in a basin, as the Deerfield River in its meanderings, washes the base of those mountains for forty or fifty miles, and wafts on its tumultuous waves the seeds of various plants from those mountains, and deposits them in this fertile basin. Hence this little alluvial tract is peculiarly rich in botanical productions. Nearly one thousand species were found within the borders of this town in a single season, including those which were naturalized. Extensive herbariums were formed from these, and those of Dr. Cooley and Dr. Hitchcock were among the earliest and most valuable in the country. Both these gentlemen, I believe, still continue to add to their extensive collections. Dr. Hitchcock was much assisted in his early investigations upon this subject, by Miss Orra White, of Amherst, now his wife, one of our most distinguished naturalists, who, with her own hand, painted many of the plants collected with almost inimitable beauty. She still cultivates almost all the branches of

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natural history with great assiduity, as do the gentlemen mentioned above. President Hitchcock has long been considered the most learned geologist in America.

My object in attending to the study of botany, was to investigate the medical properties of such plants as we might discover in our peregrinations and wanderings. The field had been but partially explored, and many of our plants, in the language of the immortal Rush, were "exhaling their virtues in the desert air." After my marriage, in 1818, to Miss Harriet T. Goodhue, I was greatly assisted by my wife, who drew and painted most of the plants painted by Mrs. Hitchcock, besides very many others from nature, and from other sources. In subsequent years, this collection of paintings has been very much enlarged by my daughter Helen Maria (now Mrs. Huntington), and my younger daughter, Caroline Willard. The paintings now in my possession, principally of medical plants, from these and other sources, amount to several hundred, which, to me at least, are invaluable, and they have been of great service to me in my lectures on medical botany at Dartmouth Medical College, and upon materia medica in the Willoughby University of Ohio. This, in my opinion, is the most permanent and beautiful method of preparing what may be called a fac-simile of an herbarium. There is no danger of the destruction of the paintings from insects, and of the fading of the plants from the ravages of time. I have availed myself, also, of all the limited means in my power, to procure our valuable, and even costly works upon Medical Botany. In this way, I have enriched my library with the splendid work of W. P. C. Barton, with the beautiful plates of Michaux, and many other splendid works. While making my collection of coloured engravings of plants, I have devoted much of my attention to the investigation of the medicinal properties of the plants which have been found in this section of the country; and so long ago as the year 1819, I compiled a volume upon the medical virtues of our plants, culling information from every source within my reach, both regular and empirical, and I have been adding to that collection ever since. If I have not recorded much that is new, I trust I have at least enlarged the boundaries of our vegetable Materia Medica. In this report, however, of the Medical Botany of Massachusetts, I can only give an outline or skeleton of the properties of the plants enumerated. An extended account of their uses would comprise a volume of no inferior dimensions.

Rather than cumber the individual articles upon which I have

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treated in this report of the indigenous medicinal plants of Massachusetts, with the names of my authorities under the head of the articles treated of, I have preferred to group the principal part of them together in these remarks, without regard to names, to time and dates. I may here observe, that I have very briefly noticed more than three hundred medicinal indigenous plants found growing in Massachusetts, which is as far as I have been able, at present, to investigate them. My list is, undoubtedly, very imperfect. Many more may be known which have escaped my notice. The list of valuable articles is increasing, and many years will not elapse before a perfect account will be obtained of them. Many of them, of which I have spoken, will, probably, be considered inert; and others will be deemed more valuable than they have been described to be. I have not treated of any article without some authority. Probably as many naturalized medicinal plants are to be found in Massachusetts, as indigenous. If so, our vegetable materia medica is rich, and will well repay further and deeper investigation. Had the Committee been called upon by the Association to investigate our exotic, as well as indigenous plants, my list of references to authorities would have been altogether greater. As it is, I shall mention only a few of those from whom I have received most important information. I have availed myself, among other works, of the knowledge communicated upon the subject, by Rees's Cyclopedia, Encyclopedia Britannica, the new Edinburgh Encyclopedia, Willich's, the Encyclopedia Americana, Nicholson's, and the Cyclopedia of Practical Medicine, as far as published; of Michaux, Bartram, Weld, Flint, Drake, Peck, Darby, Schoolcraft, Morse, Godman, Wilson, Audubon, Carver, Pursh, Muhlenberg, Elliott, and many other writers upon our Southern and Western States, and travellers in those regions; of Catesby, Clayton, Kalm, Robbins, Charlevoix, and other celebrated travellers in America; all of whom have spoken, more or less, of our plants. To Silliman's Journal, the American Philosophical Transactions, the Transactions of the Academy of Arts and Sciences, of the Phil. Academy of Natural Sciences, the Journal of Pharmacy, B. S. Barton's Medical and Physical Journal, Barton's Elements of Vegetable Materia Medica, his Medical Botany, his Flora, &c., both with splendid coloured plates, Coxe's Medical Museum, Coxe's Dispensatory, the Philadelphia Medical Recorder, the American Journal of the Medical Sciences, the Philadelphia Medical Examiner, Carson's (splendid) Medical Botany, with elegant coloured engravings, Griffith's Medical Botany, Rafi-

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nesque's Medical Flora (I have quoted largely from this latter work, though many of the virtues of the plants described by him depend rather too much upon the Indians to be considered absolutely established; he was, however, ranked among our most distinguished naturalists), the New York Medical Repository, the New York Medical and Physical Journal, the New York Medical Magazine, the New York Medical and Surgical Journal (and particularly to a most able article in it, upon the Medical Botany of the State of New York, by Dr. Charles A. Lee, the editor), the Lyceum of Natural History of New York, and the writings of Mitchell, Torrey, Gray, Emmons, Dewey, Eaton, &c.; the New England Journal of Medicine and Surgery, the Boston Medical and Surgical Journal, the works of Bigelow, Peck, and the indefatigable and learned Martyn Paine, Nuttall, and others, Sumner, Ives, Comstock, Tully, &c. Each of the above journals and authorities, and many others to which time will not allow me to allude, contain numerous papers of much value, upon the medical properties of individual plants. Mrs. Lincoln's Botany, and the able and elaborate reports upon the subjects of natural history, to the Legislatures of the States of New York and Massachusetts. To the Professors Dewey and Hitchcock I am indebted, in a great measure, for my catalogue of the names of the indigenous medical plants of this State; and also to Bigelow, in his last edition of the Plants of Boston. To these latter works, to Gray and Torrey, to Lindley, Eaton, and many other standard writers on botany, some one or more of which must be in the possession of all my readers, I refer for particular descriptions of the plants which I have noticed. As a minute account of them would enlarge this report to the size of a volume, I merely refer the plants of which I speak to the natural orders and the sexual system.

Of Pharmacopœias, Dispensatories, Materia Medicas, and works upon Natural History, I have examined the ancient "*Secretes of Alexis*," in black letter, published in 1559; Culpepper's Herbal, published in 1653, containing coloured plates of more than four hundred plants; Salmon's Dispensatory, 8th edition, 1716; Brooks' Natural History, and his Practice of Physic; Quincy's Dispensatory; the Edinburgh and London Dispensatories; the Eclectic Dispensatory; Pereira and Thomson's Materia Medicas and Dispensatories; Wood and Bache's Dispensatory; the Pharmacopœia of the United States, and Sequel of the Massachusetts Medical Society; New York Hospital, &c.; Paris's Pharmacologie; Dunglison's New Remedies; Smith's Physiology of Plants; the invaluable work of Lindley

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on Medical Botany, from which I have quoted largely; Evelyn's Sylva, folio; the able treatise on the Botanical History and Medical uses of British Plants, published in the early volumes of the London Medical and Physical Journal, and also to other articles in that work; Thomson's Abridgment, in quarto, of the Transactions of the Royal Society of London; Linnæus's Species Plantarum, 4 vols. octavo; De Candolle, Loudon, Willdenow, Sprengell, Woodville, Pennant, Lightfoot, Cullen, Rutherford, Ray, Murray, Hill, Duncan, Lindelstolphe, Dioscorides, Boerhaave, Duncan, Strack, Haller, Curtis, Gmelin, Wepfer, Hoffmann, Stokes, Bergius, Stork, and many other standard and scientific medical writers, which time will not permit me to enumerate. On this subject, I have also endeavoured to procure information from sources of even doubtful authority. From what may be considered by some as empirical authority. I have consulted the works of Henry, who has written a large volume upon Medical Botany, with numerous plates. Thomson's Manual, Mattson's Practice, with coloured plates, Stewart's Healing Art, and a host of herbals and family practices, which have been hawked about the country by pedlers and petty mapmen. I, too, have listened to the marvellous stories of illiterate old women and Indian doctors, concerning the virtues of plants, and have endeavoured to draw useful information concerning the medical virtues of our indigenous plants. From these results, some facts may be collected which will enable us to prepare an extended and useful vegetable Materia Medica of the United States.

Catalogue of the Indigenous Medicinal Plants growing in Massachusetts, as far as I can ascertain them; arranged according to the Natural System of Lindley, and to the Sexual Systems of Linnæus.

It is presumed that every physician possesses some elementary treatise on botany, which will describe the botanical history of the plant of which I treat. I shall not, therefore, give the botanical description of them, any farther than to refer to the orders, classes, &c., as this would enlarge my paper to the size of a volume.

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Class I. VASCULARES.—FLOWERING PLANTS.

Sub-Class I. EXOGENÆ; OR, DICOTYLEDONS.

Tribe 1. *Angiospermæ; or, seed inclosed in a covering, or pericarp.*
2. *Polypetalous and Achlamydeous Plants.*

Order 1.—Araliaceæ; or, Aralia Tribe.

1. *Aralia racemosa.* Spikenard. Class 5, Order 1, Linnæus. Eleven species of aralia are noticed in the new Edinburgh Encyclopedia.

2. *Aralia nudicaulis.* Wild sarsaparilla; wild liquorice; sweet root.

3. *Aralia hispida*, or *Spinosa.* Prickly ash; spikenard tree; angelica tree; prickly elder; toothache tree. These three aralias are officinal in the United States Pharmacopœia, Wood and Bache, &c. They are stimulant, emetic, cathartic. For an account of the specific medical properties and uses of the officinal plants of this State, I refer to the sequel of the U. S. Pharmacopœia, Wood and Bache, and to the standard writers upon medical botany in the United States. I shall merely glance at the leading medical properties of such, without entering much into detail.

4. *Panax quinquefolium.* Ginseng; 5, 2, Linn.
This plant is stimulant, cordial, aromatic, tonic, and expectorant. It is considered the divine remedy among the Chinese, as much as the lobelia, or Devil's pepper, is thought to be such among the Thompsonians and steamers. In China, this plant is called ginseng, which, in the Chinese language, signifies *man's health.*

Order 2.—Umbelliferæ, or Umbelliferous Tribe.

5. *Conium maculatum*; 5, 2, L. Water parsley; poison parsley.

6. *Cicuta maculata.* Water parsley; death of man; wild hemlock.

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7. *Cicuta bulbifera.* Water hemlock; 5, 2, L. These three plants are officinal. They are narcotic, anodyne; and, taken in over doses, they are virulent, narcotic, acrid poisons. Here is an instance, as I have stated in my preamble, which falsifies the assertion that plants of the same class and order possess similar medicinal properties. The anise, dill, and many other umbelliferous plants are aromatic and stimulant, and not narcotic and poisonous, while the coniums, cicuta, &c., in large doses, are deadly poisons; and numerous instances have occurred of death having ensued from mistaking the seeds of cicuta for caraway, and the roots for parsley. Five species of conium have been discovered, and three of cicuta.

8. *Daucus carota.* Wild carrot; 5, 2, L. Sixteen species known. Off. Stimulant, diuretic, carminative, and antiseptic. In the form of poultice as an antiseptic, few articles in the Materia Medica surpass it. It is found wild in Massachusetts, and it is also extensively cultivated as an esculent vegetable.

9. *Ligusticum.* Eighteen species known; 5, 1, L.

Ligusticum Scoticum. Smellage; lovage. It is sweet, aromatic, warm, and pungent, similar in its properties to opoponax angelica, &c. Although the whole of the plant is used, the seeds are the most powerful. It is carminative, diaphoretic, and emmenagogue.

10. *Angelica.* Five species known; 5, 2, L.

Angelica triquinata. Wild angelica; sometimes, though erroneously, called cow parsnep. This plant is sometimes mistaken for cicuta, or poison hemlock, though their properties are entirely different. It is aromatic, tonic, carminative, and stomachic, and useful in colic, dyspepsia, &c.

11. *Sanicula.* Four species known; 5, 2, L.

Sanicula Marylandica. Sanicle. It is supposed to be astringent, partially tonic, and diuretic, and it has been used with success in dropsy; and in decoction in dysentery, leucorrhœa, and hemorrhages. It is also pulmonary and balsamic.

12. *Sium.* Nine species known; 5, 2, L.

Sium latifolium. Water parsnep. Narcotic, supposed by some

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to be diuretic, emmenagogue, &c. Rafinesque says the Sium latifolium is certainly poisonous.

13. *Smyrnium.* Nine species known; 5, 2, L.

Smyrnium aureum. Meadow parsnep; by many called cow parsnep; Alexanders. A warm debate has been carried on in the Boston Medical Journal, between Dr. Oliver Partridge and Dr. James Thacher, both over eighty years of age, whether this is the genuine cow parsnep, or whether the Heracleum lanatum, or masterwort, is not the cow parsnep. The former maintaining that the Smyrnium is the true cow parsnep, and the latter that the Heracleum is the genuine cow parsnep. We are too apt to be led astray by English names. Dr. Partridge is still living at Stockbridge, Mass., in the ninety-sixth year of his age. Dr. Thacher died at Plymouth, two or three years ago, over eighty years of age. After reading the debate, I leave it to my brethren to decide which is correct. Dr. Partridge has used the Smyrnium successfully in cases of epilepsy, while the late Dr. Orne, of Salem, has also used the Heracleum with success in this terrific disease. The Smyrnium is a warm, stimulating aromatic.

14. *Apium.* Two species known; 5, 2, L.

Apium graveolens. Celery, and wild celery. This plant grows wild in Massachusetts. It is stimulant, diuretic, and diaphoretic. It is used much, and successfully, in cases of strangury, gravel, &c.

ORDER 3.—RANUNCULACEÆ, OR CROW-FOOT TRIBE.

15. *Hydrastis.* One species known; 13, 13, L.

Hydrastis Canadensis. Yellow puccoon; golden seal; yellow eye-bright; yellow root; Indian paint; ground raspberry. This is a very celebrated remedy with empirics, and, I believe, with the Thompsonians and steamers. The root is the part employed, which is very bitter, pungent, and nauseous. It is put down in the Secondary List of articles in Wood and Bache, and, I believe, in the U. S. Pharm. Rafinesque speaks of it as a tonic, detergent, and ophthalmic. It is in high reputation in Kentucky and Ohio for affections of the eyes. The Indians use it for ulcerated legs, and other local complaints. It is employed as a tonic internally, in infusion or tincture, in affections of the liver and stomach. This plant appears to be slightly narcotic. It is used in aphthous ulcerations. It deserves scientific investigation.

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16. *Actæa.* Three species known; 13, 1, L. These three are found here, and are

Actæa rubra; 17. *Actæa alba;* 18. *A. racemosa.* Cohosh; baneberry. They are all officinal. The roots are rather bitter, and are sometimes used as a tonic. They are also nervine. The whole plant and berries are said to be poisonous. They are used in decoction in chronic rheumatism, in the declining stage of fevers, in hysteria, &c. They frequently induce perspiration. The recent plant appears to be stronger than the dry. It should be avoided in active inflammations. The actæa racemosa has sometimes been confounded with the cimicifuga racemosa.

19. *Aquilegia.* Six species known; 13, 5, L.

Aquilegia Canadensis. Columbine. This is sometimes cultivated in our gardens, though indigenous. It is similar in its properties to the A. vulgaris, which is said to be a gentle laxative, diuretic, and emmenagogue. Most parts of the plant are in use in Europe (Raf.). The seeds are acid, and somewhat oleaginous: and, infused in wine, they have been used in jaundice.

20. *Clematis.* Thirty species known; 13, 13, L.

Clematis Virginica. Virgin's bower. The fibrous part of this plant may be converted into paper. It is very acrid, and is employed as a caustic for the purpose of cleansing ulcers. The extract is used for pains in the bones, in doses of from one to two grains. Frictions of the oily liniment of it are said to cure the itch. It is also used as a diuretic and sudorific in chronic rheumatism, and in palsy. The bruised green leaves are employed by quacks as cathartics in foul ulcers. On account of the irritating properties of this plant, it was called by Stark and the older writers *Flammula jovis.* As a diuretic, he gave four ounces three times a-day, made by infusing two or three drachms of the leaves in a pint of water. A strong infusion, frequently applied, is said to cure the itch.

21. *Anemone.* Thirty-three species known; 13, 13, L.

Anemone nemorosa. Wood anemone; wind flower. Off. The whole plant, and, in fact, the whole of this genus, are very acrid and irritating. It is used as a substitute for Spanish flies. Kalm says the hairy leaves, infused in alcohol, are efficacious in toothache, when applied to hollow teeth.

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22. *Anemone pratensis.* The extract of this is said to be useful in cutaneous affections. Dose, two or three grains, gradually increasing to a scruple. On this point, Storck, Gmelin, and Bonnet all agree. The anemones are used in monthly suppressions. Hand's Phys. and Surgeon.

23. *Coptis trifolia;* 13, 13, L. Gold thread; mouth root. Off. Tonic, astringent, and in great repute in canker, and ulcerations of the mouth.

24. *Hepatica triloba.* Liverwort; 13, 13, L. This plant is brought into considerable repute, of late, for the cure of coughs and consumptions. Notwithstanding all the boasted panaceas of the quacks, this fell destroyer still reigns triumphant, and probably the day will never arrive when seated consumption will be curable.

25. *Thalictrum.* Twenty-seven species known; 13, 13, L.
Thalictrum dioicum. Meadow rue. A poultice made of the leaves of this plant has been known to relieve the pain of sciatica. The roots of some of the species have been considered useful in the bites of snakes, and the leaves have been used in making spruce beer.

26. *Caltha palustris*; 13, 13, L. Cowslip; Marsh marygold. An excellent pot herb, though acrid when young.

27. *Ranunculus.* Eighty-eight species known; 14, 1, L.
Ranunculus acris. Buttercup; crowfoot; yellow weed; meadow bloom; yellow pilewort. This is put down in the secondary list in the United States Pharmacopœia. It is an acrid and poisonous plant. From depending on the English name, some have mistaken the geranium maculatum for this. See a communication from Dr. Partridge and myself, in the Boston Medical and Surgical Journal, vol. xviii. March 28, 1838. This plant is so acrid that it has hardly ever been given internally, as it is apt to occasion inflammation of the stomach. Applied to the skin, it will blister speedily, and does not produce strangury like the Spanish fly.

28. The *Ranunculus sceleratus* possesses properties similar to this.

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29. *Delphinium.* Sixteen species known; 13, 8, L.

Delphinium consolidum. Larkspur. Sec. U. S. P. This plant is supposed to possess the properties of delphinium staphisagria, which has been much employed in medicine. It has been thought to possess the power of healing or consolidating wounds; hence the name consolida. The seeds are acrid and diuretic, and produce vomiting and purging. A tincture, prepared by infusing an ounce of the seeds in a pint of alcohol, has been of service in spasmodic asthma, and in dropsy, in the dose of ten drops, gradually increasing until the system is affected. This tincture kills lice on the human head.

30. *Aconitum.* On the authority of Dewey, I place this among the indigenous plants of Massachusetts. Sixteen species known; 13, 2, L.

Aconitum napellus. Wolf's-bane. Off. Schœpf says this plant grows in Virginia. It is a most powerful narcotic, for the properties of which I refer to Wood and Bache, U. S. Pharm., Orfila, and other standard writers.

31. *Nigella.* Five species known; 13, 5, L.

Nigella damascena. Fennel flower. Sec. It is used in medicine merely as an aromatic.

32. *Cratægus.* Nine species known; 12, 2, L.

Cratægus coccinea. Thorn-bush. Fruit red or yellow, acid or sweetish. They are made into preserves, which are stomachic, antiemetic, and good against diarrhœa. The leaves and flowers are pectoral, and used in hooping and other coughs.

Order 4.—Papaveraceæ.

33. *Chelidonium.* Six species known; 13, 1, L.

Chelidonium majus. Celandine. Sec. This plant is acrid and pungent, diuretic, diaphoretic, and expectorant. Formerly much used for the cure of warts and herpetic eruptions. Much was said of it formerly as being famous for the cure of syphilis. But little dependence is now placed upon it in this affection.

34. *Sanguinaria.* One species known; 13, 1, L.

Sanguinaria Canadensis. Blood-root; puccoon, &c. Off.

Most elaborate treatises have been written upon this most valuable plant by all writers upon botany and medical botany, and many

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medical writers. The most extensive article ever published on this subject was written by Dr. Tully, of New Haven, and published in the Philadelphia Medical Recorder, to which the reader is referred. To me it has always been a subject of wonder that the steamers, or Thompsonians, had not selected this article for their almost divine adoration, rather than their more dangerous lobelia.

Order 5.—Nymphiaceæ.

35. *Nymphæ.* Ten species; 13, 9, L.

Nymphæ odorata. White pond lily; sweet pond lily. Sec.

In my practice, I have found a poultice of the root of this plant more efficacious as a suppurative application than any other article I have ever used. It is grated either in the dry or green state, and boiled in milk and water and thickened with bran to the consistence of a poultice. I have never used the plant for any other purpose, though it may possess the other properties spoken of by writers on the subject.

36. *Nuphar advena;* 13, 1, L. This was taken from the genus Nymphæ (yellow water lily). It possesses properties similar to the nymphæ, but in less degree.

Order 8.—Podophylliæ.

37. *Podophyllum.* Three species and several varieties; 13, 1, L.

Podophyllum montanum, vel peltatum. Mandrake; May apple, &c. Off. This is one of our best cathartics. The fruit is edible.

Order 9.—Cruciferæ.

38. *Sinapis.* Twenty-six species known; 15, 2, L.

Sinapis nigra. Black mustard. Off. The external employment of this article in the form of cataplasms is almost superseding the use of cantharides.

39. *Raphanus raphanistrum;* 15, 2, L. Charlock, or chadlock. This plant is similar to mustard in its properties. It is a pernicious weed to our farmers, choking up their oat-fields.

40. *Lepidium.* Thirty-seven species known; 15, 2, L.

Lepidium Virginicum. Pepper cress; wild pepper grass. This plant is aromatic, acrid, and diuretic. It is useful in scurvy, asthma, dropsy, &c. Raf.

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41. *Cochlearia.* Twelve species known; 15, 2, L.

Cochlearia armoracia. Horseradish. Off. This is a warm stimulant rubefacient. In addition to the other properties of it mentioned by writers on the subject, an infusion of it in milk, and sweetened with honey, is a most efficacious gargle for hoarseness.

42. *Cochlearia officinalis.* 15, 2, L. Scurvy grass. Off. Similar in its properties to horseradish; used in chronic obstructions of the viscera, in the scurvy, and in chronic rheumatism. A healthy, early salad. The infusion of the plant in wine, or the juice of it, is a good application in spongy gums. By distillation, alcohol is impregnated with its virtues, and the distilled spirit is useful in paralysis. (Wood and Bache.) The fresh root is purgative, and has been used after poisoning by corrosive sublimate.

43. *Thlaspi bursæ pastoris.* Shepherd's purse.

44. *Dentaria diphylla.* Tooth root.

45. *Cardamine Pennsylvanica.*

46. *Draba verna.* All the above possess properties similar to the cochlearias.

Order 10.—Fumaraceæ.

Fumaria. Thirty species; 17, 18, L.

47. *Fumaria officinalis.* Fumitory. Sec. This plant is tonic, bitter, and antiscorbutic. It is in extensive use for cutaneous eruptions. Its virtues principally reside in the dried plant. It has been said to cure the epilepsy. A notorious empiric directs to pour two quarts of boiling water on two ounces of the dried plant, and he uses it in all foul eruptions of the skin, by letting the patient drink constantly of it, and washing the parts freely with it. For a stomachic, infuse two ounces of the dried leaves and plant in three pints of Madeira wine, rum, or brandy, of which the dose is a wine-glassful of the wine, or a tablespoonful of the spirit three times a day, on an empty stomach.

Order 11.—Capparideæ.

48. *Cleome.* Twenty-four species known; 15, 2, L.

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Cleome dodecandria. False mustard. Used in Cochin China as a counter-irritant in the same way as mustard. The root is used in the United States as a vermifuge.

Order 12.—Berberideæ.

49. *Berberis.* Barberry; 6, 1, L.

Berberis vulgaris. Barberry. Sec. The whole plant is agreeably acid. It probably contains the tartaric acid. The bark is of a yellow colour, and bitter. The red berries and the leaves are refrigerant, and slightly antiscorbutic. The conserve is an agreeable acid, somewhat purgative. It has been used in leucorrhœa, canker in the mouth, &c.

50. *Leontice.* Four species; 6, 1, L.

Leontice thalictroïdes. Cohosh; pappoose root; squaw root; yellow ginseng, &c. This plant is different from the Actæas, which are sometimes called cohosh, and must not be confounded with them. It is the Caulophyllum thalictroïdes of Rafinesque. The root is the only part employed. It is demulcent, antispasmodic, sudorific, and emmenagogue. The Indians recommend it in colic, sore throat, rheumatism, dropsy, and a variety of other complaints. The Indian women use it successfully in cases of lingering parturition, by giving constantly a strong tea of it during labour, or a week or two before the expected period. It appears to be peculiarly suited to female complaints. It is a powerful emmenagogue, and promotes the delivery of the menstrual flux, and dropsical discharges. It should be given in warm infusion, decoction, tincture, syrup, or cordial. It contains gum, resin, and oil. Raf.

Order 13.—Magnoliaceæ.

51. *Liriodendron tulipifera*; 13, 13, L. White wood tulip tree. Sec. This stately tree, which bears the most magnificent flowers, is seen in Massachusetts. I have seen immense forests of it in all their grandeur in the Western States. The bark, particularly the bark of the root, is stimulant, tonic, and diuretic. It is much used in rheumatism, intermittents, dyspepsia, &c. It has been proposed as a substitute for Peruvian bark; used for bots in horses, and worms in children. An elegant coloured plate of it may be found in those splendid works, Bigelow's Medical Botany and Barton's Flora.

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52. *Magnolia.* At least nine species to be found in the United States; 13, 13, L.

Magnolia glauca. Beaver tree, &c. Sec. This species extends throughout the New England States. It is similar in its properties to the Liriodendron, but more bitter and tonic. Dr. Procter found, upon analysis, that the bark of the Magnolia glauca afforded a volatile oil, a green resin, and a peculiar crystallizable substance similar to Liriodendron.

Order 14.—Laurineæ.

53. *Laurus.* Forty-one species; 9, 1, L.

Laurus benzoin. Fever-bush; spice-wood, &c. Sec. Every part of the shrub has an agreeable, spicy taste; but it is strongest in the bark and berries. It makes an agreeable aromatic drink in infusion or decoction; and is useful, like sage, in fevers. By some, it is considered vermifuge. It has, also, been used extensively in intermittents. The dried and powdered berries were used, during the Revolutionary war, for allspice. The oil of the berries is stimulant, and is used for bruises, itch, colic, &c. The leaves and berries are used in dysentery. Raf. Lindley.

54. *Laurus sassafras.* Off. The root of this plant is highly aromatic and stimulant. The pith is very demulcent, and forms a mucilage which is useful in dysentery, catarrh, and ophthalmia.

Order 24.—Malvaceæ.

55. *Althæa.* Ten species known; 16, 13, L.

Althæa officinalis. Mallows. Off. This plant, although ranked among those which are naturalized, is also indigenous in Massachusetts. It is very mucilaginous; and Buckholdt states that the dry roots of this plant, boiled in water, give out half their weight of a gummy matter, very similar in its properties to gum tragacanth, gum Arabic, &c., and which will more speedily dissolve gum myrrh and other resins than gum Arabic, starch, &c. It is one of our purest demulcents.

56. *Hibiscus.* Sixty-nine species; 16, 13, L.

Hibiscus palustris. Marsh hibiscus; sweet weed. This plant is also demulcent. The hibiscus esculentus is edible, and is considered a delicacy.

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57. *Malva.* Sixty-two species; 17, L.
Malva sylvestris. High mallows. Off.

58. *Malva crispa.* Curled mallows.

59. *Malva rotundifolia.* Round mallows. All the species of mallows are mucilaginous and emollient, and are useful in catarrhal affections, dysentery, and in all the affections of the urinary organs. Both the high and the low mallows are much used as emollient enemas. They are also used in emollient poultices for tumours and inflammations. They are of service in gonorrhœa, and in sore-throat and lungs.

60. *Sida abutilon.* Indian mallows. This plant is also emollient and diuretic.

ORDER 25.—TILIACEÆ.

61. *Tilia Americana.* Bass-wood, or Linn; 13, 13, L.

This is one of the most valuable trees we possess, not only on account of the lumber it produces, but on account of its medicinal properties. Withering says it makes the best charcoal for gunpowder, drawing, &c. I have long wondered why it has not been adopted into our materia medica as an officinal. Dr. Walmsley first called the attention of the public to it as a remedy in burns, in a letter to Dr. Benjamin Smith Barton, of Philadelphia, as early at least as 1803, and it was published in his admirable Medical and Physical Journal. The part of the bark made use of by Dr. Walmsley is the liber or inner bark. He generally used it freshly taken from the tree; but it answers very well when carefully dried. In either case, it is cut into small pieces and macerated in cold water, frequently stirring it about. In a short time, the water becomes extremely viscid, and with this the injured part is kept constantly wetted. In addition to its mucilaginous properties, it is also slightly astringent. I agree with Dr. Walmsley, from whom I first derived my information on the subject, that I have found more benefit from it in cases of burns than from any other remedy which I have ever employed. I more frequently make it into a poultice by boiling the inner bark in milk and water, to the consistence of a mucilage, and make a thin poultice by the addition of a little wheat or rye bran, and apply it to the affected part. It is much more soothing than any other application I have ever tried, giving relief when topical

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anodyne applications have failed. I now use it very extensively in old wounds, bruises, and ulcers. I do not recollect that any writers upon materia medica or medical botany, except Dr. Walmsley, have ever recommended this valuable article.

Order 36.—Hypericeaneæ.

62. *Hypericum.* One hundred species; 13, 5, L.

Hypericum perforatum. St. Johnswort. Sec. The leaves are astringent; an infusion has been used in gargles and lotions (Lindley). This plant is balsamic, somewhat styptic, pectoral, vulnerary, and bitter. The flowers are the parts which are principally used. Although they are of a yellow colour, they have the property of dying oils red. Infused in bear's fat or olive oil, they make a beautiful, red, balsamic ointment for sores, wounds, tumours, ulcers, and rough skin. The infusion of the leaves is of service in affections of the breast and lungs. It is also used in diarrhœa, hysteria, mania, and low spirits. A syrup of it, with sage, is said to be efficacious in croup. Formed into an ointment with bark of elder, stramonium, and bittersweet, and used in scirrhosities in the breast, it is thought to be very efficacious. Raf. According to B. S. Barton, this plant infused in spirit is a valuable remedy in diarrhœa, and in obstructed perspiration. The Germans in Pennsylvania consider it a specific in cases of diarrhœa. The season in which the plant is to be gathered and dried is from the end of June to the first of August. It is called St. Johnswort on account of its being in blossom on St. John's day. Dr. Muhlenberg first recommended this plant in diarrhœas and dysenteries. It is supposed that it is the balsam or essential oil which is to be found in the perforations of the leaves or petals, which impart a fine colour to the spirit in which they are infused. When it is given to children for what is called the "summer disorder," or vomiting and purging, Dr. Withering recommends this tincture, prepared with brandy, with the addition of a small quantity of cinnamon, given in a little sweetened water. It should not be given in dysentery till after purgation; but in diarrhœa we need not wait for this. It is a plant which deserves further investigation. See an interesting article on it in Barton's Med. and Phys. Journ.

63. *Hypericum Virginicum.* Virginia St. Johnswort. This plant possesses properties similar to the above.

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ORDER 38.—SAXIFRAGEÆ.

64. *Saxifraga.* Seventy species; 10, 2, L.

Saxifraga Pennsylvanica. Rock saxifrage. This plant is bitter and astringent. The roots are useful in gravel. Raf.

65. *Mitella diphylla.* Currant leaf; 10, 2, L. This plant is refrigerant, and is much used as a cooling drink in fevers.

66. *Tiarella cordifolia.* Miterwort; 10, 2, L. The root is considered to be both mucilaginous and pectoral.

ORDER 39.—HAMAMELIACEÆ.

67. *Hamamelis*; 4, 2, L.

Hamamelis Virginica. Witch-hazel; winter bloom; pistacha nut. Sec. This singular shrub does not begin to flower till late in the fall, and the flowers do not drop off till winter. The fruit does not ripen till the following fall. The bark is a bitter astringent, with a sweet and somewhat pungent taste. By the Indians it has been employed as a sedative and resolvent in painful tumours, and in external inflammations. It may be used in the form of a poultice, or of a wash in the piles, and in inflammation of the eyes. The infusion of the leaves is similar in its properties to that of the bark, and is given in affections of the bowels, and in hemorrhagic complaints. A tea made of the leaves is good in suppression of the menses, for pain in the side, breasts, &c., and for hematemesis. It is thought to be a mild astringent, and may be used as a substitute for statice and many other mild astringents. Raf. It is thought by some to possess anodyne properties; but I am not aware of the fact.

ORDER 49.—CIRCORACEÆ.

68. *Circæa lutetiana*, 2, 2, L. Enchanter's nightshade. It derived its name from being much celebrated in former times in the mysteries of witchcraft, and for the purpose of raising the devil. This superstition is fostered from the fact of its growing among the mouldering bones and decayed coffins in the ruinous vaults of Strafford church in Lincolnshire, Eng. Darwin, in his Botanic Garden, has some amusing remarks upon it in connection with animal magnetism. The enchanters made use of this method by the employment of this plant. This same kind of enchantment, without the use of this plant, was revived in this country in 1837 and 1838, and the mummery went down the throats of many of

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our easily-gulled people. The good sense of the great body of our inhabitants is, however, fast consigning it to the "tomb of all the Capulets."

Order 52.—Salicarliæ.

69. *Lythrum verticillatum.* Willow herb. This plant is slightly astringent, and somewhat mucilaginous. It is of some use in diarrhœas and dysenteries.

Order 62.—Aristolochiæ.

70. *Asarum.* Four species; 12, 1, L.

Asarum Canadense. Wild ginger; snakeroot. Sec. A warm, stimulant; aromatic, like the aristolochia serpentaria, but not emetic. Lind. It is also similar in its properties to the Virginia snakeroot, but more aromatic. Its properties may be extracted by water and by spirit. It is said to be injured by boiling. It is useful in the low stages of fevers, in nervous affections, palpitations, and similar complaints. When a company of Indians from Canada were in Deerfield, in the year 1837, I was affected with palpitation of the heart, and they were much offended with me because I would not take one of their preparations which contained a large proportion of this snakeroot. They use it extensively in many complaints. The best preparation is said, by Rafinesque, to be a cordial made with the tincture and syrup. The tincture is coloured dark red by the resin. A fine cephalic snuff may be made of the powder of the root, useful in disorders of the head and eyes. A pleasant kind of wine or beer may be made, by infusing the whole plant in fermented wine or beer. Dr. Firth says he cured tetanus with a decoction of the roots.

Order 73.—Rosaceæ.

71. *Rosa.* Fifty-one species; 13, 13, L.

Rosa rubiginosæ. Sweet-briar.

72. *Rosa canina.* Dog-rose. These two species are indigenous. The properties of all the roses are similar. As some of them are officinal, I refer the reader to the standard works on the materia medica, and to our pharmacopœias.

73. *Potentilla.* Fifty-four species; 12, 13, L.

Potentilla reptans. Cinquefoil.

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74. *Potentilla Canadensis.* Five finger. The above are mild astringents, and have a bitterish, sweetish taste. They were formerly in some demand for the cure of diarrhœas, and in those cases where mild astringents were required. Properties similar to tormentilla.

75. *Geum.* Fifteen species; 12, 3, L.

Geum urbanum. Synonym—*Geum rivale; Geum Virginianum.* Off. Avens-root; chocolate-root; herb bennet; cure-all; throat-root. This plant is strongly astringent, tonic, and stomachic. It contains tannin, adaganthine, gum, resin, and a peculiar oil heavier than water. Raf.

76. *Agrimonia.* Five species; 12, 2, L.

Agrimonia eupatoria. Common agrimony. Sec. Celebrated as a vermifuge; also used in decoction as an astringent gargle and lotion. A common ingredient in "herb teas." Lindley. It has been used in diseases of the genital organs, according to Alibert, and Pallas says it has been employed in Russia, as a remedy for worms in domestic animals. The Cyclopedia of Practical Medicine says it is employed in the materia medica of the Indians, who use it as a febrifuge; and Kalm says the Canadians use it in the same manner, and for the same purposes. Its virtues reside in an essential oil, which turns black with the salts of iron.

77. *Fragaria.* Nine species; 12, 13, L.

Fragaria vesca. Common strawberries were used medicinally in the days of Hoffmann and Linnæus, and have been considered useful in consumption, gout, scurvy, and gravel. They are considered refrigerant, diaphoretic, pectoral, and astringent. Infused in water, they have the property of curing chilblains, when washed by it. The roots are tonic, astringent, and bitter. They contain tannin and gallic acid, and are good in diarrhœa, hemorrhages, &c. A popular remedy in dysentery, according to the newspapers, is to chew the whole plant and swallow it.

78. *Rubus.* Forty-six species; 13, 13, L.

Rubus villosus. High blackberry. See Bigelow's splendid plates, and a description in his elegant Medical Botany.

79. *Rubus occidentalis.* Black raspberry.

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80. *Rubus strigosus.* Red raspberry.

81. *Rubus odoratus.* Flowering raspberry. The berries of these plants are well known and delicious. The roots are astringent and tonic.

82. *Prunus;* 12, 1, L. Plumbs and cherries. Rafinesque says there are forty wild species known, and only twenty-five described by authors. The most medicinal are the Prunus Virginiana, serotina, and Canadensis. The bark of all these is bitter and astringent, and contains prussic acid. These barks are the bases of several quack medicines for the cure of consumption. In large doses, the bark is narcotic and vermifuge.

83. *Sorbus.* Four species; 12, 2, L.

Sorbus Americana. Mountain-ash; service tree. Indian name, Moosee Missy. This elegant tree, whose clustered red berries adorn our door yards during the winter, is valuable as a medicine. The bark tastes and smells very much like cherry tree bark; but it is more astringent, and contains prussic acid. It is used like the Peruvian bark. The Indians recommend it as a tonic in diseases of the heart.

84. *Spiræa.* Twenty species; 12, 5, L.

Spiræa tomentosa. Hard-hack; steeple bush. I have found this to be one of our most powerful astringents, both in the form of infusion and extract. It is also powerfully tonic. It may be used after proper evacuations in diarrhœa, dysentery, and cholera infantum. It is also useful in cases of debility, in the absence of inflammation and fever. It agrees better with the stomach than any other astringent. Dose of the extract from five to fifteen grains; of a very strong decoction, from one to two ounces. It is well worthy of a place as an officinal in our Materia Medica.

85. *Spiræa alba.* White hard-hack. Is similar in its properties to the above.

Order 77.—Leguminosæ.

86. *Apios.* 17, 10, L.

Apios tuberosa. Ground-nut; Indian potato. The root is esculent, and was formerly cultivated by the Indians. It deserves

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further cultivation, especially since we are suffering from the potato rot, as it is quite as nourishing, it is supposed, as the potato.

87. *Cassia.* Seventy-five species; 10, 1, L.

Cassia Marylandica. American senna; wild senna. Off. All the species of senna are simply cathartic, though some operate more powerfully than others; and they are apt to occasion griping, unless qualified by the seeds of anise, caraway, &c. The American senna is not so powerful as the East Indian, or Alexandrian; the latter is much the better. The dose of the American senna is one ounce in decoction. A tea of the leaves makes an excellent enema. Senna enters into many of our compounds; as, the senna electuary.

88. *Lupinus perennis.* Common lupine. The seeds are bitter and tonic.

89. *Trifolium.* Eighty-five species; 17, 10, L.

Trifolium arvense. Clover; field clover. The flower contains a good deal of honey. The blossoms of

90. *Trifolium repens*, white clover, were once used in gout. They are moderately astringent. The steamers make a salve of the heads of red clover, which they use in the cure of cancer.

91. *Melilotus.* Two species; 17, 10, L.

Melilotus officinalis. Melilot; melilot clover. Sec. This plant has a peculiar flavour resembling that of the Tonquin bean, and it has been used for the same purpose to scent snuff. It is pectoral and demulcent, and is employed for dysuria, coughs, and leucorrhœa. It is also used in emollient poultices. The melilot is a principal ingredient in Kitteridge's celebrated bone ointment.

Order 78.—Urticaceæ.

92. *Urtica dioica.* Stinging nettle; 20, 4, L. This plant is antiscorbutic, diuretic, and astringent. It has been supposed to have some efficacy in consumptive complaints; but its power must be feeble in this respect. A writer in the *Boston Mercantile Journal* values it highly as one of the most valuable styptics known. It is a healthy pot herb. Its sting is one of the most irritating known. The following lines are not inapplicable to it.

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"Tender handed, touch the nettle,
And it stings you for your pains;
Grasp it like a man of mettle,
And it soft as silk remains.
Thus it is with common natures:
Treat them kindly, they rebel;
But be rough as nutmeg graters,
And the rogues obey you well."

93. *Urtica pumila, vel adesia.* Water nettle; stingless nettle. The footstalks of the leaves and of the stem of the plant are filled with water so as to make them transparent. Bind the leaves upon scrofulous sores, and they allay the irritation. They are said to be excellent for wounds, and also for eruptions.

94. *Humulus.* Six species; 21, 5, L.

Humulus lupulus. Hop. Off. The properties of this well-known narcotic and sedative are now as well known as opium or cicuta. My late friend, Dr. A. W. Ives, of New York, first directed the attention of the faculty to the farina of the plant, which he named *lupuline.*

Order 88.—Euphorbiaceæ.

95. *Euphorbia.* One-hundred and fifty-five species; 19, 3, L.

Euphorbia maculata. Spotted spurge; Bowman's root; emetic weed. The properties of the Euphorbias are generally diaphoretic, astringent, emetic, cathartic, rubefacient, blistering, and stimulant, according to the different species. By many, some of the species are considered equivalent to ipecacuanha. For cathartic operation they are considered equal to jalap or scammony, and it requires but half the quantity to purge that these famous medicines do. They deserve the further consideration of physicians.

96. *Acalypha.* Thirty-nine species; two in the United States; 20, 16, L.

Acalypha Virginica. Three-seeded mercury; mercury weed. This species is found in all the States in the Union. It has been found by Dr. Atkins to possess diuretic and expectorant properties, and it has been used in various species of dropsy, and in asthma. The quacks at the South use it extensively for various purposes, according to Elliott, the southern botanist.

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Order 122.—Geraniaceæ.

97. *Geranium.* Forty-two species; 16, 10, L.

Geranium maculatum. Crows-bill, sometimes, though improperly called crow-foot. Off. This is one of our purest astringents, accurately and beautifully drawn and described by Bigelow and others, to whom I refer the reader.

98. *Geranium Robertianum.* Herb Robert. This plant has much reputation with many people for the cure of bloody water in cattle and horses, and also for the cure of bloody flux in them, and it is thought by some more efficacious in these complaints than most of the common medicines in use. It is employed in tanning in Germany, like the other species of geranium. It is diuretic, and less astringent than the G. maculatum, and, therefore, more proper in nephritis, and diseases of the bladder. It has been used in fever and ague, and as a gargle for sore mouths and throats.

99. *Oxalis acetosella.* Wood sorrel; 10, 5, L. Off. From this plant the oxalic acid is prepared, which is so extensively employed in medicine. This plant is a good diuretic. Boiled in milk, it yields an acid whey. It is useful in affections of the kidneys. The oxalic acid, taken to a considerable extent, is poisonous. The leaves should, therefore, be used with moderation. One hundred pounds of the leaves give thirty pounds of juice, which yield ten ounces of superoxalate of potash. This is sometimes used under the name of salts of lemon. A conserve and syrup are made of the leaves, which are pleasant medicinal preparations, but perhaps inferior to currant jelly, and other acid fruits. Raf.

100. *Oxalis stricta.* Possesses similar properties.

Order 126.—Balsaminæ.

101. *Impatiens.* Thirteen species; 5, 1, L.

Impatiens noli me tangere, vel pallida. Touch-me-not; jewel weed. Sec. The whole plant is acrid. When taken internally, it operates as an emetic, cathartic, and diuretic. Dr. Ruan, of Philadelphia, employed it successfully in piles, by boiling the plant in a recent state in lard. The *impatiens balsamine* of the gardens possesses the same properties as the noli me tangere. W. and B.

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Order 129.—Polygalaceæ.

102. *Polygala.* Ninety-four species; 17, 3, L.

Polygala sanguinea, vel P. paucifolia. Flowering winter-green. The properties of this plant are similar to Polygala senega. The taste and smell are similar to Gaultheria procumbens. It is stimulant and sudorific. It is milder than seneka, and may be useful in rheumatism, dropsy, and asthma. It may be used in decoction.

Order 130.—Violaceæ.

103. *Viola.* Fifty-seven species; 5, 1, L.

Viola pedata. Bird-foot violet. Off.

104. *Viola cucullata.* Common field violet.

105. *Viola palmata.* Hand violet.

106. *Viola ovata.* Rattlesnake violet.

107. *Viola Canadensis.* Canada violet.

108. *Viola pubescens.* Yellow wood violet.

All the violets are most excellent demulcents, and are very important in a medicinal point of view. The V. pedata and V. ovata are the most useful. I have published a long account of them, and of the efficacy of the latter in the bites of venomous reptiles, and in ophthalmias, strangury, &c., in the American Journal of the Medical Sciences, which has been transferred to the American Journal of Pharmacy. The paper has also been published in the New York Journal of Medicine. To these works I refer the reader. I have correct paintings of the above species of violets.

Order 137.—Droseraceæ.

109. *Drosera rotundifolia.* Sun dew. Numerous species. The juice of this plant is said to destroy warts, corns, &c.; and infused in milk it has been used for freckles and sun burns. It is supposed to be pectoral, and, in the form of syrup, is used in asthma. Raf.

Order 140.—Caryophyllaceæ.

110. *Saponaria.* Nine species; 10, 2, L.

Saponaria officinalis. Soapwort; bouncing Bet. Sec. The soapworts are diaphoretic, tonic, and hepatic. They are useful in rheu-

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matism, gout, jaundice, and hepatic eruptions. They have been considered vermifuge and diuretic. Used in scrofulous and venereal ulcers. On account of its frothing, it is called soapwort. Raf.

111. *Agrostemma githago.* Cockle. This is a poisonous plant in wheat fields, imparting a strong and bitter taste to bread. The grain which contains much of it should, therefore, be used only for the manufacture of starch.

112. *Spergula.* Ten species; 10, 5.

Spergula arvensis. Spurry. The inhabitants of Norway and Finland use the seeds of this plant for bread, when their corn fails. Poultry are fond of them. It is nutritious to cattle, but not to horses, sheep, and goats.

Order 147.—Crassulaceæ.

113. *Sempervivum.* Fourteen species; 11, 13. This plant is cultivated as an ornament to our houses, hence it is called houseleek. The leaves are thick and succulent. They are slightly astringent and sourish to the taste. They are externally applied as a cooling application in the recent state, bruised, to burns, stings of bees, &c., and to other affections of the skin, ulcers, inflammation, &c. An ointment made by boiling them in lard, is excellent in piles, chilblains, &c.

Order 153.—Chenopodiaceæ.

114. *Chenopodium.* Thirty-eight species; 5, 2, L.

Chenopodium botrys. Jerusalem oak. Off. This is not the genuine worm-seed, though it possesses anthelmintic properties, like the rest of the genus. The whole of this plant possesses excellent pectoral properties. A valuable syrup is prepared from it for recent coughs. Emmenagogue, resolvent, and carminative.

115. *Chenopodium hybridum.* Aris, a species of hogweed. This plant is in great use in domestic practice as an emmenagogue. A tea of it is made with pennyroyal, and the patient is to drink of it *ad libitum*, and to soak the feet in warm water. I have seen most wonderful effects from the use of this tea; but, perhaps, it may be imputed in part to the pennyroyal which is used with it, which is a very popular emmenagogue of itself.

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Order 154.—Phytolaccaceæ.

116. *Phytolacca.* Six species; 11, 10, L.

Phytolacca decandra. Poke, garget, crowberry, &c. Off. This valuable plant possesses emetic, cathartic, and narcotic properties. It is in great repute for the cure of rheumatism, the piles, cancer, and a great variety of complaints. Farmers make much use of the roots for rowels or setons, for their cattle and horses. The berries are employed in tincture. For a more particular account, see dispensatories, &c.

Order 157.—Polygonaceæ.

117. *Polygonum hydropiper*, or *punctatum.* Water pepper, smartweed, &c.; 9, 3, L. Fifty-three species of the genus. Off. This is a biting, pungent diuretic, inflaming the tongue and skin, when applied to them. It is vermifuge, and highly stimulant. Infused in wine, it is much used in gravel. It is said to cure ulcers in the mouth, toothache, &c. The ashes make a soap, which Cutler says has been a specific for the cure of stone in the bladder. A tea of the plant is good in coughs and colds. Cattle will not touch the plant. Snakes avoid it, and it kills fish. An infusion of it is a powerful promoter of urine. Raf. It is singular that, wherever geese are kept, this plant abounds. Formerly they roamed in Deerfield Street, and the plant covered the whole street. But, since they are not suffered to run at large, the plant is not found here.

118. *Polygonum fagopyrum.* Buckwheat. An infusion of this plant is useful in erysipelas, used externally and internally.

119. *Rumex.* 6, 3, L.

Rumex acetosella. Sorrel; sorrel dock. The leaves have an agreeable acid taste, and are refrigerant, antiscorbutic, and diuretic.

120. *Rumex crispus.* Curled dock. Off. The medical properties of the various species of dock are mildly astringent, bitter, and tonic, and also laxative. They are valuable in scorbutic and other eruptions. At one time, they were thought to be a specific in the cure of the itch, and cancers. According to Rafinesque, the roots contain sulphur, starch, oxalate of lime, &c.

Order 173.—Pyrolaceæ.

121. *Pyrola.* Altered to *Chimaphila.* Seven species; 10, 1, L.

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Chimaphila maculata. Prince's pine; pipsissewa; spotted winter-green. Off. This is a most powerful diuretic, and has been extensively used in dropsy. It is also tonic, astringent, and depurative. It is much used in cutaneous eruptions, and particularly in cancerous affections, over which it has a feeble, if any, action. See Materia Medica.

122. *Chimaphila rotundifolia.* Round-leaved winter-green; shinleaf. The leaf, bound on old ulcers of the skin and leg, have proved successful in their cure.

123. *Monotropa.* Four species; 10, 1, L.

Monotropa uniflora. Pipe plant; beech drops, &c. It is ophthalmic and nervine. The juice mixed in water, according to Rafinesque, is deemed by the Indians specific in sore eyes. The dried root is employed in epilepsy, and in the diseases of children, in doses of a teaspoonful, united with valerian. That notorious empiric, Steward, says it is a substitute for opium. According to him, it eases pain, comforts the stomach, and causes sleep and rest.

Order 175.—Lobeliaceæ.

124. *Lobelia.* Ninety-five species; 5, 1, L.

Lobelia inflata. Indian tobacco; devil's pepper, &c. Off. So much has been said and sung about this "divine remedy" of the steamers, that it is needless to recapitulate it here. The manner in which it received its appropriate English name may be found in my paper upon this plant, published in the New York Journal of Medicine and Surgery for the year 1846.

125. *Lobelia cardinalis.* Cardinal lobelia. This seems to possess many of the same properties with the above, but in less degree.

Order 182.—Plantageneæ.

126. *Plantago.* Seventy species; 4, 1, L.

Plantago major. Great plantain. The leaves of this plant are used as a cooling vulnerary. The root is febrifuge and astringent, and used for diarrhœa, sore eyes, and bloody fluxes. The leaves are good for ulcers, the bites of venomous insects, and tumours. The seeds are vermifuge. The properties of

127. *Plantago lanceolata,* ribwort, are somewhat similar.

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ORDER 186.—COMPOSITÆ.

128. *Arctium.* Two species; 6, 1, L.

Arctium lappa. Burdock. Off. The root has been considered tonic, aperient, sudorific, and diuretic. It has been used in the form of decoction in rheumatism, and diseases of the skin. Sir Robert Walpole praised it as a gout medicine, and others have considered it an excellent substitute for sarsaparilla. The fruit, which is bitter, and slightly acid, has been used as a diuretic. (Lindley.) The wilted leaves, applied to bruises and local pains, are excellent discutients and anodynes. It was once thought to be a certain cure for cancer.

129. *Leontodon.* Six species; 18, 1, L.

Leontodon taraxicum. Dandelion. Off. This beautiful plant has come into much vogue in medicine, within a few years, for the cure of hepatic affections and dyspepsia. It is diuretic, and slightly tonic and aperient. It is thought to excite the languid action of the liver, and to discuss chronic enlargements of it. It is particularly adapted to all the diseases produced by the derangement of the biliary secretions. An infusion or decoction of the root, or the extract, removes obstructions of the bowels, and promotes the flow of urine. It is also useful in diseases of the skin, in dropsy, consumption, and scirrhosities of the stomach. An irritable state of the stomach forbids the use of it, or much inflammation of that organ, otherwise it may be taken freely. It is used in extract or decoction.

130. *Lactuca.* Twenty-three species; 18, 1, L.

Lactuca elongata. Wild lettuce. Anodyne, laxative, diaphoretic, and diuretic.

131. *Prenanthes.* Thirty-five species; 18, 1, L.

Prenanthes alba. Gall of the earth. This is the famous Indian cure for the bite of venomous serpents. It grows to a great height. The leaves are lactescent, and every part of the plant is intensely bitter.

132. *Hieracium.* Eighty species; 18, 1, L.

Hieracium venosum. Veiny-leaved hawk-weed. The whole plant is active and bitter to the taste. It is also vulnerary and astringent, sudorific, antiseptic, and pectoral. Schoepf and Harlan have both used the bruised leaves with success for the bite of the rattlesnake. By some, it has been called rattlesnake plantain, but erroneously.

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It has also been empirically used for the cure of hemoptysis, scrofula, amenorrhœa, and hemorrhages. It is sometimes united with bloodroot in powder for the cure of polypus in the nose.

133. *Liatris.* Eight species; 18, 1, L.

Liatris scariosa. Gay feather. Sec. The root has the smell of turpentine, and a bitter terebinthinate taste. It is diuretic in its properties. In decoction, it is employed in gonorrhœa and in sore throat. Also in dropsy, angina, croup, pain in the breast, gravel, &c.

134. *Vernonia prealta;* 18, 1, L. Devil's bit; iron-weed. From the roots, a spirituous bitter is made, which is used in fevers in Kentucky. Good against poisons. The leaves, which are astringent, are used in sore throats.

135. *Carduus altissimus.* Thistle; 18, 1, L. An infusion of the roots is good in cases of salt-rheum.

136. *Eupatorium.* Seventy-five species; 18, 1, L.

Eupatorium perfoliatum. Thoroughwort; boneset, &c. Off. This well-known plant is most beautifully figured by Bigelow and others, to whom I refer the reader. More virtues are ascribed to it, as a cathartic, emetic, diuretic, tonic, &c., than to almost any other plant in use.

137. *Eupatorium purpureum.* Jopi root; purple boneset. Off. Elegantly painted by Barton in his Flora. It derived its name of Jopi root from an Indian in New England of that name, who cured typhus with it by powerful sweating. Eberle asserts that catarrhal fevers are cured by it by drinking a weak infusion of it on going to bed. In the dyspepsia of the aged, it is valuable. It is useful as an auxiliary to other tonics and emetics. But the principal use to which it is applied is as a diuretic, and it is, on this account, called gravel root; and we have few plants that are more efficacious in this respect. It is the queen of the meadows of the steamers.

138. *Gnaphalium.* One hundred and sixty species; 18, 2, L.

Gnaphalium margaritaceum. Life-everlasting. Sec. This and the G. polycephalum, silver-leaved gnaphalium, are used in infusion in affections of the breast and bowels, and in hemorrhages. Externally, they are used in fomentations; and in wounds, bruises, and internal

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pains. They are mildly astringent and vermifuge; and are good in dysentery. The gnaphaliums have different names, such as white plantain, poor robin, rattlesnake plantain, squirrel ear, &c. They are used in cases of poisoning, and of the bite of the rattlesnake. Rafinesque says the Indians will, for a trifle, allow themselves to be bitten, and cure themselves at once with this plant.

139. *Artemisia.* Seventy-two species; 18, 2, L.

Artemisia absinthium. Wormwood. Off. Much has been said in the medical journals in favour of wormwood in cases of epilepsy. It does not, however, answer the high encomiums bestowed upon it. It is considered to be antiseptic, stomachic, detergent, vermifuge, and emmenagogue. Given in the form of infusion or powder, it has been used in all these affections. The leaves, bruised and steeped in spirit and vinegar, are valuable discutients; and I know of no more soothing application in bruises and wounds.

140. *Artemisia Canadensis.* Southern wood. This is also useful in the same cases. It is called mugwort.

141. *Anthemis.* Forty-two species; 18, 3, L.

Anthemis cotula, synonym *Maruta cotula.* May-weed; wild chamomile. Sec. It is a mild tonic, possessing, in some degree, the properties of the genuine chamomile. According to Dr. Ashley, in the Philadelphia Journal of Pharmacy, it is a powerful vesicant.

142. *Chrysanthemum.* Thirty-five species; 18, 2, L.

Chrysanthemum leucanthemum. Ox-eyed daisy; white-weed.

This is a pestilent weed in grass fields. The young leaves may be eaten in salads. When bruised, they afford a good application to scirrhous tumours. It is said that if a decoction of them be taken by a person subject to the jaundice, immediately after coming from the tepid bath, it will tend to restore his natural colour. A decoction increases the urinary discharge. It is of service in debility attended with sweating, if drank freely, and the patient is kept cool. It is used for wounds, asthma, consumptions, and tinea. It is a principal ingredient, under the name of Pissabed, in Stewart's vegetable ointment, for the cure of salt rheum, and other cutaneous eruptions.

143. *Achillea.* Forty-eight species. Syng. Superf., L.

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Achillea millefolium. Yarrow. It is similar in its properties to chamomile; stimulating, slightly astringent, and tonic.

144. *Tanacetum.* Eighteen species; 18, 2, L.
Tanacetum vulgare. Tansy. Off. Vermifuge, tonic, and stimulant.

145. *Inula.* Forty-three species; 18, 2, L.
Inula helenium. Elecampane. Sec. Stimulant, slightly tonic, and pectoral. In great use in diseases of the breast and lungs.

146. *Tussilago.* Twenty-one species; 18, 2, L.
Tussilago farfara. Colt's-foot. Off. Demulcent and expectorant. More extensively used by the people at large in the form of syrup, in coughs, than almost any vegetable known.

147. *Erigeron.* Forty-three species; 18, 2, L.
Erigeron Canadense. Canada fleabane. Sec.

148. *Erigeron Philadelphicum.* Philadelphia fleabane. Sec. These plants are some of our most powerful astringents. For an extensive account of their medicinal properties, see a paper published by me on the subject in the New York Journal of Medicine and Surgery for 1846.

149. *Senecio hieracifolium.* Fire-weed; groundsel. An ointment made from this weed is most efficacious in the piles. It is also useful in diseases of the skin, wounds, &c., in hemorrhages, and in wounds. It is emetic in large doses.

150. *Aster.* One hundred and twenty species; 18, 2, L.
Aster Nova Angliæ. New England aster. Our beautiful asters do not blossom here till late in the summer, or early in the fall. Their medical properties have not been sufficiently investigated. According to Dr. Lawrence, of Lebanon, N. Y., a Shaker, this species is employed in decoction externally in eruptions of the skin, and it is also very valuable against the virulence of the poison sumach.

151. *Aster cordifolius* is useful as a nervine, and is preferable, in many instances, to valerian. It has been used in decoction and in-

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fusion in spirit for rheumatism. A species called squawroot has been used by old women as a *partus accelerandum.* The asters may be profitably employed as equivalents to valerian in nervous affections, in epilepsy, spasms, hysteria, &c. Raf.

152. *Solidago.* Forty-eight species; 18, 2, L.

Solidago odora. Sweet-scented golden-rod. Off. The golden-rods are very abundant here, blossoming late in the fall; but this species is scarce. This is aromatic, stimulant, carminative, and diuretic, when given in warm infusion. An oil is obtained from it which is very pleasant, and much resembles the oil of anise. It is proper in all those cases where the latter is used. The flowers make an agreeable tea.

153. *Bidens.* Twenty-one species; 18, 2, L.

Bidens aroma. Water-beggar-tick. This is a troublesome weed in our gardens and fields. The ticks, or beggar-lice, as they are sometimes called, boiled in water and strained, mixed with syrup of sugar or honey, form a most excellent expectorant for hooping cough, other kinds of coughs, and catarrhal affections.

154. *Ambrosia.* Nine species; 25, 5, L.

Ambrosia elatior. Rag-weed; hog-weed; wild wormwood. This plant is considered to be emollient and antiseptic when used in fomentations. It is a troublesome weed in gardens and fields. Most animals, except the hog, refuse it; and, if cows eat it, it makes their milk bitter. It is said to give a bitter taste to bread when mixed with the wheat.

155. *Ambrosia trifida.* Called horse-weed. According to Rafinesque, it is used by the Indians to make a kind of hemp and ropes. Used in after-pains, and nervous and hysterical affections.

156. *Xanthium strumarium.* Sea-burdock; clot-burr. The leaves are bitter and astringent, and are useful in scrofula, herpes, and erysipelas. They dye a yellow colour.

Order 180.—Stellatæ.

157. *Galium.* Seventy-seven species; 4, 1, L.

Galium asprillum. Rough bedstraw. This has been extensively used as a diuretic, and has been employed most successfully in all

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suppressions of urine, strangury, gravel, &c. It has also proved beneficial in scurvy, bleeding at the nose, hemoptysis, &c. An infusion of it has been said to have cured the epilepsy and the gout. A poultice of it, also, has been used for tumours of the breast.

158. *Galium aparine.* Cleavers; goose grass. Sec. This plant has a bitter, herbaceous, and acrid taste. The juice is diuretic, aperient, and antiscorbutic. It is useful in the various species of dropsy, scrofula, and scurvy. The fresh plant, prepared into an ointment, or decoction, has been used externally to scrofulous swellings with success.

159. *Asclepias.* Fifty species; 5, 2, L.

Asclepias Syriaca. Silkweed; milkweed. Sec. This plant is anodyne, expectorant, &c. The young shoots are edible, like asparagus.

160. *Asclepias incarnata.* Flesh-coloured asclepias. Sec. The western Indians use the roots in dropsy, asthma, dysentery, and as emetics. Some physicians consider the plant emetic and cathartic.

161. *Asclepias tuberosa.* Pleurisy root; butterfly-weed, &c. Off. This is considered one of our most valuable expectorants, the properties of which are described in our Dispensatories and Materia Medicas.

Order 196.—Apocyneæ.

162. *Apocynum.* Eighteen species; 5, 2, L.

Apocynum androsæmifolium. Common dog's-bane; bitter root; honey-bloom, &c. Sec. This plant is emetic, tonic, syphilitic, alterative, and diaphoretic. It is most beautifully coloured, and described by Bigelow, to whom, and to the Dispensatories, I refer for further information concerning it.

163. *Apocynum cannabinum.* Indian hemp. Sec. It is similar in its properties to the above. Both these plants, instead of being on the secondary list in our Pharmacopœias, should be officinal.

Order 197.—Gentianaceæ.

164. *Gentiana.* Sixty-one species; 16, 10, L.

Gentiana saponaria. Soapwort gentian; blue bells.

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165. *Gentiana saponaria.* Fringed gentian. All the gentians are beautiful plants, and they are all tonic, bitter, corroborant, cathartic, and are excellent substitutes for foreign gentian. They invigorate the stomach, and are useful in dyspepsia, and in debility of that organ. They are extensively employed in the Southern States in various kinds of fevers, pneumonias, &c., as tonics. In large doses, they are purgative.

166. *Menyanthes.* Six species; 5, 1, L.

Menyanthes trifolia. Buck bean; water shamrock. In large doses, this plant has a bitter, tonic, and cathartic property. It is also stomachic and febrifuge, anthelmintic and diuretic. In decoction, it is used in dropsy, rheumatism, worms, &c. It was formerly a good deal used, then neglected, but now coming into vogue again.

ORDER 199.—CONVOLVULACEÆ.

167. *Convolvulus.* One hundred and fifty species; 5, 1, L.

Convolvulus arvensis. Field bind-weed; wild potato. This has sometimes been used as a substitute for jalap, but it is a very feeble one. It is supposed to be somewhat diuretic, and it has been used in cutaneous complaints. Forty grains of the powder purge gently.

168. *Cuscuta.* Eleven species; 5, 2, L.

Cuscuta Americana. Dodder. This plant is bitter and subastringent. It dyes red. It is also stomachic, febrifuge, and antiscrofulous. It is used in decoction for agues.

ORDER 110.—OROBANCHEÆ.

169. *Orobanche.* Twenty-four species; 14, 2, L.

Orobanche Virginiana. Beech drops; cancer root. Sec. This plant is bitter, nauseous, and astringent. It loses, in some measure, these powers by drying. It has been employed in bowel affections; but its virtues mainly depend upon its supposed efficacy in curing cancerous ulcerations; and it was for a long time supposed to be a principal ingredient in the secret remedy of Dr. Martin, for the cure of cancer. But Dr. Rush proved the powder of Dr. Martin principally to consist of arsenic. This plant is also powerfully astringent, and has been used for erysipelas, and canker in the throat. It is used at the West as a specific in syphilis and gonorrhœa. It is also employed for hepatic affections, diarrhœa, and dysentery. (Synonym, *Epiphegus Americana.*)

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170. *Orobanche uniflora.* Small cancer roots. The properties of this are similar to the above.

171. *Scrophularia.* Twenty-eight species; 14, 2, L.

Scrophularia Marylandica. Figwort. This plant has a rank smell and bitter taste, which seem to indicate that it possesses some active medicinal properties. It is vulnerary and resolvent, and is much used in the Northern and Middle States. It is good in ulceration in the form of poultices. By washing with a decoction of it, swine infected with the scab, are cured, and also dogs.

172. *Chelone.* Four species; 14, 2, L.

Chelone glabra. Snake head. The valmony, I believe, of the Thompsonians. This plant is a good corroborant, and should be classed with our tonics. It is most intensely bitter to the taste. It may be used in strong infusion; useful in dyspepsia, loss of appetite, and general debility. See an interesting article on this plant by Dr. J. A. Allen, of Middlebury, Vermont, in the Boston Medical and Surgical Journal; see also Rafinesque, who gives a long account of it from Dr. Lawrence, of New Lebanon, Mass.

173. *Leptandra Virginica.* Bowman's root; physic root; Culver's physic. The plate of this plant, as given by Rafinesque, exactly resembles the spiræa tomentosa, though the properties are opposite. The former (leptandra) is powerfully cathartic, and the spiræa is powerfully astringent. The root is the part employed. The roots, according to Rafinesque, lose much of their virulence by drying, and a drachm of the powder becomes an uncertain purgative, while, when fresh, they are drastic and dangerous in substance, and are said to produce bloody stools, dizziness, vertigo, and abortion.

174. *Pedicularis.* Thirty-four species; 14, 2, L.

Pedicularis Canadensis. Common lousewort. It is vulnerary, and sometimes called heal-all. The Indians used to cure the bite of the rattlesnake with this plant.

Order 213.—Solanaceæ.

175. *Solanum.* One hundred and fifty-six species; 5, 1, L.

Solanum dulcamara. Bittersweet; woody nightshade; poison bittersweet. This must not be confounded with the celastrus scan-

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dens, or waxwork, which is universally called bittersweet by the common people. The solanum dulçamara is narcotic, as are all the solanums, diaphoretic and diuretic. Bigelow has painted it elegantly in his splendid Medical Botany.

176. *Solanum nigrum*; variety *Virginianum*. Common nightshade; garden nightshade. A light decoction of the leaves, taken at bedtime, occasions a free perspiration, increases the urine, and produces a purgative effect the following day. The leaves applied externally, abate inflammation and assuage pain. The leaves are poisonous, and to poultry they are immediately fatal. Externally, it has been found a useful discutient and anodyne in various affections of the skin, tumefactions of the glands, ulcers, and disorders of the eyes. With the Arabians, it is a common application to burns and ulcers, and Ray speaks highly of it in indurations of the breast. Mr. Gattaker has recommended, in a publication on the subject, its internal use in old sores, scrofulous and cancerous ulcers, cutaneous eruptions, and even in dropsies; one grain of the dried leaves, he says, infused in an ounce of water, sometimes produced considerable effect; in a dose of two or three grains, it seldom failed to evacuate the first passages, and to increase sensibly the discharge from the skin, or by the kidneys; and not unfrequently it occasions headache, giddiness, dimness, and drowsiness. The flowers smell like musk.

177. *Physalis alkekengi*. Ground cherry; winter cherry. The berries are diuretic and sedative. They are acrid and bitterish; but children are nevertheless fond of them.

178. *Hyoscyamus*. Eight species; 5, 1, L.

Hyoscyamus niger. Black henbane; stinking nightshade. Off. This is a highly narcotic, but most valuable medicine in the hands of judicious physicians. In many respects, it is superior to opium, as it is not apt to leave the bowels in a costive state. See Dispensatories.

179. *Datura*. Eight species; 5, 1, L.

Datura stramonium. Thorn apple; apple peru; Jamestown weed, &c. Off. This valuable anodyne and narcotic may also be found well described in all our standard materia medicas.

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180. *Verbascum.* Twenty-seven species; 5, 1, L.

Verbascum thapsus. Mullein. Off. This plant is slightly narcotic, anodyne and emollient. It was in early use by the fathers of our profession, and was much extolled by Woodville, Home, Bergius, Withering, and many others, in diarrhœa, dysentery, piles, &c.

ORDER 220.—VERBENACEÆ.

181. *Verbena.* Twenty-one species; 14, 1, L. Sec.

Verbena hastata. Purple vervain. Sec. The vervain was formerly used in sacrificial rites, and in the superstitions of the day. In later times, it has been used as a cataplasm, by which the most severe and obstinate cases of cephalalgia are said to have been cured. It is bitter, emetic, and expectorant, and is much used as an ingredient in syrups for coughs, consumptions, &c. The steamers think this plant almost equal to the lobelia as an emetic.

182. *Verbena urticifolia.* Nettle-leaved vervain. Sec. This plant has been employed with advantage in poisoning from the poison sumach. It is prepared by boiling it with the inner bark of the white oak. Thus prepared, it is used in erysipelas.

183. *Lycopus*; 2, 1, L.

Lycopus Virginicus. Water agrimony; bugle. Sec. In a paper, upon this subject, published in the New York Journ. of Med. and Surg. for 1846, I have spoken of this plant as being one of the most valuable styptics we possess in our vegetable materia medica.

184. *Monarda.* Eight species, 2, 1, L.

Monarda oblongata. Mountain balm; or, mountain mint. Off. The monardas are allied to the melissas. They are tonic, febrifuge, nervine, antiseptic, and anti-emetic.

185. *Hedeoma.* Three species; 14, 1, L.

Hedeoma pulegioides. Pennyroyal; squaw mint. Off. This is a stimulating, aromatic carminative. It is a most powerful emmenagogue, and very much in popular use for suppression of the menses.

186. *Collinsonia.* Four species; 2, 1, L.

Collinsonia Canadensis. Horse-balm; horse-weed; rich-weed, &c. The whole plant has an aromatic, balsamic smell, somewhat resembling that species of sage called herb clary. It is carminative

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and vulnerary, corroborant and diuretic, warm and stimulating. It is used in the form of poultice for wounds, sores, bruises, &c. In infusion, it is taken for colic, cramps, headache, indigestion, &c. The whole plant is used both green and dry. Schœpf extols it in lochial colic, bites of snakes, rheumatic pains, in strong friction with the leaves. Dr. Mease says the root infused in cider has cured the dropsy. The decoction is good in the sore backs of horses.

187. *Glecoma.* Two species; 14, 1, L.

Glecoma hederacea. Gill; grow by the ground; ground ivy. Sec. This is tonic and stimulant, and useful in affections of the lungs and kidneys. It is also somewhat aperient; it is pectoral and ophthalmic; used for debility of the viscera, for coughs, obstructions, and for cleansing abscesses in the kidneys and lungs. It has been employed in jaundice, the hypochondriac disease, colic, and asthma. As a sternutatory, it has been employed in headache.

188. *Hyssopus nepetoides.* Four species; 14, 1, L. Off. It is a warming stimulant, and slightly aromatic. An infusion of it is in high repute in coughs and chronic affections of the lungs. It is very diaphoretic and expectorant, and it is in great demand in fevers and acute complaints.

189. *Melissa.* Eleven species; 14, 1, L.

Melissa cataria. Catnip; catmint. Sec. This is altered from nepeta to melissa. An infusion of the plant is deemed by some to be almost specific in chlorosis. Cats are very fond of it, and eat it with avidity. It is carminative and stimulant, and much used in the flatulence of infants. Miller says that, if it be raised from seeds, cats will not meddle with it. In support of this opinion, he quotes an old saying: "If you sow it, the cats will know it; if you set it, the cats will eat it." It is said to have been advantageously administered in amenorrhœa. Lindley.

190. *Leonorus.* Eight species; 14, 1, L.

Leonorus cardiaca. Motherwort. A decoction of this plant has similar properties with valerian, and is used in nervous and hysterical affections. It is stimulant and pectoral, and is employed for coughs, catarrhs, and heartburn.

191. *Chenopodium.* Synonym, *Cunila.* Five species; 14, 1, L.

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Cunila mariana. Wild basil; thyme; stone mint, &c. The whole of this plant is a pungent, warm aromatic, similar in its properties to pennyroyal. It is useful in exciting perspiration in colds, in the commencement of fevers, to promote the menses, for flatulent colic, and in all those cases where the mints are employed. Its virtues reside in an essential oil. The Indians, says Rafinesque, use it for wounds; to expel a dead child. It kills rattlesnakes by holding it to the nose by a stick.

192. *Marrubium.* Fifteen species; 15, 1, L.

Marrubium vulgaris. Horehound. Sec. This plant is tonic, with a rank smell, and bitter taste. It is emmenagogue, vermifuge, and deobstruent, and is much used in humoral asthma, dysmenorrhœa, and in affections of the kidneys, menstrual obstructions, in cachectic diseases, and phthisis. It is more used in domestic than in regular practice. It is the basis of the negro Cæsar's remedy for the bites of snakes.

193. *Prunella.* Nine species; 14, 1, L.

Prunella Pennsylvanica. Self-heal; heal-all. Sec. It has a bitter, austere taste, and was formerly much used in diarrhœa, hemorrhages, &c., and for a gargle in sore throats. By the common people it is used in the form of the bruised leaves, for fresh wounds. As it is slightly astringent, it is used in broths and apozems for bleeding at the lungs, and other hemorrhages.

194. *Teucrium.* Seventy-three species; 14, 1, L.

Teucrium Canadense. Wood-sage; germander. This plant is aromatic, bitter, tonic, stimulant, emmenagogue, &c., and useful in hematuria, gout, rheumatism, and chlorosis.

195. *Mentha.* Thirty-three species; 14, 1, L.

Mentha piperitis. Peppermint. Off.

196. *Mentha viridis.* Spearmint. Off.

197. *Mentha borealis.* Horsemint; cornmint. Off. All the mints are warm aromatic stimulants, and are useful in all those cases where aromatic stimulants are required. The mentha borealis is said to prevent the coagulation of milk; and when cows eat largely of it, which they do sometimes at the end of summer, their milk can

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hardly be made into cheese. The plant, bruised and applied to a woman's breast, when it is caked from redundance of milk, will subdue the inflammation, and cause the milk to flow in a short time. I have been more successful with this, in this complaint, than with any other remedy.

198. *Pyenanthemum.* Fifteen species; 14, 1, L.

Pyenanthemum incanum. Mountain mint. This plant is similar in all respects, in its properties, to the pennyroyal.

199. *Scutellaria.* Twenty-four species; 14, 2, L.

Scutellaria lateriflora. Scull-cap; mad-dog weed. Sec. I do not feel disposed to canvass the mooted question, at this time, whether this plant is efficacious in the cure of hydrophobia. Many highly respectable physicians have believed in its efficacy in this complaint, while others have believed it to be inert. According to Rafinesque, the dried plant gave one-fourth of soluble matter, and a very active extract. The substances found in it by Cadet were: 1. Yellow green oil, fixed and soluble in ether. 2. A bitter principle, soluble in water, alcohol, and ether. 3. Chlorophylle. 4. A peculiar volatile matter, smelling and tasting like the principle of antiscorbutic plants. 5. An essential oil. 6. Albumen. 7. A sweet mucous substance. 8. A peculiar astringent principle. 9. Lignin. When burnt, the ashes afford the chloride of soda, and seven other salts. It is, therefore, preposterous to deem such a plant inert. It is, says he, tonic, astringent, antispasmodic, and anti-hydrophobic, at least. The steamers consider it their grand antispasmodic.

200. *Ocymum.* Basil. Similar in its properties to the mints, pennyroyal, &c.

Order 222.—Boragineæ.

201. *Cynoglossum.* Thirty-five species; 5, 1, L.

Cynoglossum officinale. Hound's tongue. Sec. Called hound's tongue from the shape of the leaves. The root and leaves have an odour like mice, and it is said that rats will not infest a barn where this plant is deposited. Many writers consider this plant poisonous, while others think it inert. The point is unsettled. It has been employed as a demulcent and sedative in spitting of blood, coughs, catarrhs, dysentery, diarrhœa, &c.; likewise in burns, scrofulous tumours, ulcers, &c. The leaves, smoked like tobacco, are narcotic.

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Sub-Class II. EXOGYNÆ.

Tribe 2. Gymnospermæ.

Order 229.—Alismaceæ.

202. *Alisma.* Ten species; 18, 13, L.

Alisma plantago. Great water plantain. This plant formerly obtained great celebrity as a specific in hydrophobia. Most modern writers think it is not entitled to the high encomiums bestowed upon it by the Russian physicians. So long ago as the days of Dioscorides, this plant was considered efficacious as an antidote to opium. The whole plant is irritant. The fresh root is acrid and nauseating, and, applied to the skin, will often excite vesication. It loses this quality by drying; and, like the arum, becomes nutritious. It has also been considered useful in diseases of the urinary organs.

Order 239.—Iridaceæ.

203. *Iris.* Fifty-nine species; 3, 1, L.

Iris Virginica. Flower de luce. This plant possesses cathartic properties. It is acrid and stimulant. The expressed juice of the roots, in a dose of sixty or seventy drops, will frequently operate, when the drastric cathartics have failed. It is also diuretic and emetic. An ointment of it is said to cure the itch and other affections of the skin; and it is good for inflamed breasts, indolent ulcers, &c.

Order 240.—Orchideæ.

204. *Orchis.* Eighty-seven species; 19, 2, L.

Orchis fimbriata. Gay orchis; twin-root orchis. From the orchis a salep is made. The roots of this species are vermifuge, and the powder is said to kill worms by touching them with it.

205. *Arethusa.* Eight species; 19, 2, L.

Arethusa bulbosa. Arethusa. Schœpf says that the bruised bulbs are useful for the toothache; and they are of service in poultices for tumours.

206. *Cypripedium.* Ten species; 19, 2, L.

Cypripedium luteum. Yellow ladies' slipper; American valerian;

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nerve powder. This plant is much in vogue with the quacks and steamers. They say it possesses properties equal, if not superior, to foreign valerian. They dry the root and powder it fine, and keep it in tight stopped bottles. They call it nervine, and use it in nervous affections. They also employ it to assist the operation of their emetics, in doses of half a teaspoonful. It is said to quiet the nerves, prevent spasm, and produce sleep without stupefying. When a person cannot sleep, they put a teaspoonful of this powder into a teacupful of pennyroyal tea, and drink it warm on going to bed at night, and they say it will produce quiet and refreshing sleep. The root is the only part used. The roots are pungent and mucilaginous.

207. *Cypripedium spectabile*, gay ladies' slipper, and

208. *Cypripedium humile*, love ladies' slipper, are possessed of similar properties. They are all said to be nervine, antispasmodic, and sedative. They are used in hemicrania and nervous fevers. In many cases, the steamers think they are preferable to opium. Their power is increased by combining them with tonics. The Indians call the cypripediums pappoose, shepherd's purse, squaw moccason. They say its principal use is for women. It relieves them when they are obstinate in their monthly courses, and facilitates the birth of children.

Order 245.—Melanthaceæ.

209. *Helonias dioica.* Devil's bit. The decoction of the root of this plant is used for colic. It is thought to be anthelmintic, bitter, and tonic.

210. *Veratrum.* Nine species.

Veratrum viride. Green hellebore. Off. This plant possesses properties somewhat like the black hellebore of the shops. It is acrid, nauseous, emetic, sternutatory, diuretic, &c. I have used it with success, combined with other diuretics, in dropsy. A few grains, snuffed up the nose, proves powerfully sternutatory; and I have often employed it in cases of periodical headache, attended with dryness of the nostrils. It is prescribed in mania, psora, &c., but must be used with caution.

211. *Allium.* One hundred species; 6, 1, L.

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Allium Canadense. Wild onion. The properties of this plant are similar to onions, garlic, &c.

ORDER 245.—SMILACEÆ.

212. *Smilax.* Forty-nine species; 21, 6, L.

Smilax rotundifolia. Green briar. An infusion of this is said to be of service in mercurial salivation, in chronic rheumatism, and affections of the skin.

213. *Smilax sarsaparilla.* Sarsaparilla. This possesses the same properties as the sarsaparilla of commerce, but in a more feeble degree.

214. *Convallaria.* Twelve species; 6, 2, L.

Convallaria multiflora. Great Solomon's seal. Sec. The root of this plant has been efficaciously used in the cure of the piles. Take one pound of the green root, or four ounces of the dry root. Boil in one quart of water to one pint; strain, and add a pint of molasses; simmer, and take a wineglassful three times a-day.

215. *Trillium.* Six species, according to the New Edinburgh Encyclopedia. Thirty-five, according to Rafinesque; 6, 3, L.

Trillium erectum. Wake-robin; beth.

216. *Trillium cornuum.* Nodding wake-robin.

217. *Trillium pictum.* Painted trillium. Rafinesque says he was the first to introduce this species of plants into the materia medica. His Medical Flora was published in 1830, when he announced the fact, as he called it. It has been in use here as an astringent more than forty years; and I consider it one of our most valuable medicines in that class. It should certainly be ranked as officinal. Henry introduced it in his Medical Botany as long ago as the year 1812; and I believe earlier. In 1819, I published a full account of its virtues in the New England Journal of Medicine and Surgery; and in 1846, in the New York Journal of Medicine.

ORDER 251.—LILIACEÆ.

218. *Erythronium.* Two species; 6, 1, L.

Erythronium Americanum. Adder's tongue; dog-tooth violet. Off. The whole plant contains fecula, mucilage, and resin, and an acrid,

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volatile principle. When dry, the root is farinaceous. The bulbs of the root and the leaves are emetic, emollient, and suppurative, nutritive when dry, possessing many of the properties of lilies. The dose of the green bulb is twenty-five grains for an emetic effect. As it loses its activity by drying, it is an uncertain emetic. Bigelow proposes trying it as a substitute for colchicum. Steward says it is one of the most certain remedies in mercurial sore mouth of any yet discovered. I have not much faith in its efficacy in this respect. It is diuretic, and useful in dropsy.

Order 255.—Typhiaceæ.

219. *Typha.* Six species; 20, 3, L.

Typha latifolia. Cat-tail flag; reed-mace. The roots are esculent, and febrifuge. Their fecula yields a tenth of the whole root, similar to salep. Boiled in milk, it forms a porridge equal to that of genuine arrowroot, and useful in diarrhœas, dysenteries, and in affections of the mucous membrane of the stomach and bowels.

Order 256.—Aroideæ.

220. *Arum.* Twenty-eight species; 20, 13, L.

Arum triphyllum. Wild turnip. Sec. The whole plant is violently acrid, and very caustic to the tongue, but not to the skin. It loses its causticity, in a great measure, by drying. It is stimulant, expectorant, carminative, and diaphoretic. The fresh root is too caustic to be taken internally. The dried root is often mixed with honey, for an expectorant, in teaspoonful doses. It is good in aphthæ, in flatulence, and in cramps. It stimulates the stomach.

221. *Arum dracontium.* Gum dragon. Possesses similar properties.

222. *Cella.* Three species; 20, 13, L.

Calla palustris. Swamp robin; water arum. The properties of this are likewise similar to the arums.

223. *Ictodes fœtida.* Synonym, *Pothos fœtida.* 4, 1, L. Off. This powerful stimulant plant is so accurately described by all writers on the Materia Medica that I need not refer to them.

224. *Acorus.* Two species; 6, 1, L.

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Acorus calamus. Sweet flag. Sec. The root is the only part used, and it is highly aromatic and tonic.

ORDER 000.—CINCHONACEÆ.

225. *Cephalantus occidentalis.* Button-bush; 4, 1, L. The whole of this plant is bitter, especially the bark of the root. It is tonic, diaphoretic, and febrifuge. All the parts of the plant are used. The flowers and leaves make a fine, fragrant syrup, which is tonic and laxative, and is useful in intermittent fever, and in relaxed bowels.

226. *Cornus.* Fourteen species; 4, 1, L. N. O. *Cornaceæ.*

Cornus florida. Dogwood; box-tree. The properties of this article are astringent and tonic, and it has long been used as a substitute for Peruvian bark; and even cornine has been prepared from it, like quinine. It may be administered for the same purposes, and in the same dose with quinine.

227. *Cornus sericea.* Swamp dogwood. Sec. And

228. *Cornus circinea.* Round dogwood; possesses similar properties with the above.

229. *Mitchella.* N. O.; 4, 1, L. Sixteen species.

Mitchella repens. Creeping chequer berry; two-eyed chequer berry. This plant is sometimes mistaken for the Gaultheria procumbens, they both being evergreen; but this is a creeping plant, and that erect. This has no aromatic property, while the Gaultheria is very spicy. This is a most valuable diuretic, and is extensively used for the cure of dropsy. The red berries are mildly astringent, and are used, also, for the cure of diarrhœa. The Indian Dr. Louis uses it in combination with the Spiræa alba, a species of hardhack, for the cure of salt rheum.

230. *Lysimachia.* Twenty species.

Lysimachia racemosa. Loose strife. This plant is slightly astringent, stomachic, and expectorant. It is good for coughs and colds, and to improve the appetite.

N. O.—CAPRIFOLIACEÆ.

231. *Triosteum.* Three species; 5, 1, L.

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Triosteum perfoliatum. Horse ginseng; fever root. The root is cathartic, and in large doses emetic. It is thought by some to be diuretic. The bark of the root is the part employed. It is useful in fevers, pleurisies, agues, &c. Dose: twenty or thirty grains of the powder operate as a cathartic.

N. O.—ANACARDIACEÆ.

232. *Rhus.* Forty-two species; 5, 3, L.

Rhus vernix. Poison sumach; swamp sumach; dogwood. Off.

233. *Rhus toxicodendron.* Poison sumach. These are some of the most poisonous vegetables known in our country, hardly excepting the poison lobelia.

234. *Rhus copalinum.* Common sumach.

235. *Rhus glabrum.* Smooth sumach. Sec. These plants are valuable astringents. An infusion of the berries makes an excellent gargle for aphtha. The decoction of the bark has been successfully applied in cases of diarrhœa and dysentery.

N. O.—XANTHOXYLACEÆ. 21, 5, L.

236. *Xanthoxylon fraxineum.* Prickly ash. See Aralia spinosa.

N. O.—CELARTRACEÆ.

237. *Celastrus scandens.* False bittersweet; wax work. This plant is extensively used in the form of ointment, as an excellent discutient in all indolent indurations, and swellings, both acute and chronic; for cakes in the udders of cows, it has been more extensively used than any within my knowledge. I have used it successfully for prurigo labialis with more relief than any other application. It is good in burns, and excoriations. It is diuretic, and a decoction of the bark of the roots has been successfully used in strangury and gravel. It is said to be antisyphilitic and emetic.

N. O.—RHAMNACEÆ.

238. *Ceanothus Americana.* 5, 1, L. New Jersey tea; Sec. Nine species of Ceanothus. This is an elegant astringent, and was used by the soldiers in the Revolutionary war as a substitute for tea.

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N. O.—AMENTACEÆ.

239. *Celtis.* Fifteen species; 5, 1, L.

Celtis crassifolia. I have seen but a single tree of this species in Massachusetts; there may be many more. I believe it is a native of the South and West. The bark is anodyne and refrigerant. The berries, which are sweet and sub-astringent, are good to eat, and are useful in dysentery.

N. O.—AMENTACEÆ.

240. *Alnus.* Four species; 20, 4, L.

Alnus ferrulata. Alder. Sec. The leaves are bitter and astringent. When applied to the female breast, they are said to repel the milk. The bark is a most valuable astringent. I have published an account of its efficacy in hæmaturia, in the New York Journal of Medicine for 1846. Dr. Hilmich, of Zanesville, Ohio, in the same journal, for 1847, extols it for cancerous ulcerations, ill-conditioned ulcers, scrofulous affections, syphilis, and hepatic eruptions.

N. O.—UMBELLIFERÆ.

241. *Heracleum.* Eleven species; 5, 2, L.

Heracleum lanatum. Masterwort; cow parsnep. Sec. See the article Smyrnium, and the controversy on the subject between Dr. Partridge and Dr. Thacher. This is a warm, stimulating carminative, and has been successfully employed by Dr. Orne, of Salem, in cases of epilepsy.

242. *Ligusticum.* Eighteen species; 2, 5, L.

Ligusticum levisticum. Smellage. Sec. The whole plant is most aromatic and pungent. It possesses a resin similar to opoponax. All the parts of the plant are used; but the seeds are the most active. The properties of this plant are similar to angelica. It has been employed as an emmenagogue, carminative, and diaphoretic, in form of infusion. W. and B.

N. O.—CAPRIFOLIACEÆ.

243. *Lonicera.* Twenty-two species; 5, 1, L.

Linicera sempervirens. Honeysuckle. The ripe berries of this beautiful plant are strongly purgative. The leaves and flowers are bitterish, mucilaginous, and detersive. A syrup is prepared from them for sore-throat and irritability of the lungs.

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N. O.—CAPRIFOLIACEÆ.

244. *Sambucus.* Six species; 5, 3, L.

Sambucus nigra. Black-berried elder. Off. Diuretic and laxative. The green bark, infused in wine, is excellent in dropsy.

245. *Sambucus rubra.* Red elder. The bark of this species, in decoction, is one of the most valuable hydragogue cathartics which we possess. In large doses, it is emetic.

N. O.—RHAMNACEÆ.

246. *Rhamnus.* Forty species; 5, 1, L.

Rhamnus catharticus. Off. Buckthorn. Mildly cathartic, hydragogue, and emmenagogue. Used in dropsy, rheumatism, gout, and hepatic eruptions.

N. O.—ULMACEÆ.

247. *Ulmus fulvæ.* Off. Slippery elm. Seven species of ulnus. Rafinesque says, "A specific to procure easy labour to pregnant women, by using the tea for two months previous; well known to Indian women, whose easy parturition has often been noticed; now becoming in general use." I wish it might prove generally true among civilized women. One of the very best demulcents known.

N. O.—BORAGINACEÆ.

248. *Symphitum.* Six species; 5, 1, L.

Symphitum officinale. Comfrey. Sec. This plant contains a mucilage of a slightly astringent taste, almost inodorous. It contains mucilage and tannin. It was formerly in great use as a vulnerary; but not in much vogue now. Much used in coughs and strengthening syrups, and in female weaknesses.

N. O.—NARCISSUS.

249. *Hypoxis.* Eighteen species; 6, 1, L.

Hypoxis erecta. Yellow-eyed grass; star grass. This beautiful little grass is vulnerary and febrifuge. The roots are sometimes eaten. They are used in long-standing ulcers and agues.

N. O.—RHAMNACEÆ.

250. *Prinos.* 6, 1, L.

Prinos verticillatus. Black alder; red-berried alder. Sec. The inner bark is emetic and cathartic, tonic and astringent. It is used

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in intermittent and other fevers, dropsies, hepatic eruptions, jaundice, foul ulcers, &c., either in powder, decoction, tincture, or poultice. The red berries, which adorn the shrub during the winter, are purgative and vermifuge, tonic and bitter.

251. *Caulophyllum.* 6, 1, L.

Caulophyllum thalictroides. Blue-berry cohosh. This plant is different from the actæas, which are sometimes called cohosh, and must not be mistaken for them. The root is the only part employed. It is demulcent, antispasmodic, sudorific, and emmenagogue. The Indians and quacks recommend it in colic, sore throat, rheumatism, dropsies, &c. It partakes of the nature of ginseng and seneka. The Indian women use it successfully in cases of lingering parturition. It appears to be peculiarly suited to female complaints. It is a powerful emmenagogue, and promotes delivery, the menstrual flux, and dropsical discharges. It should be given in warm infusion, decoction, tincture, syrup, or cordial. It contains gum, resin, and oil. Raf.

252. *Cimicifuga racemosa.* Cohosh, black snakeroot, may be the synonym for the above, as its properties are similar.

N. O.—Liliaceæ.

253. *Uvularia.* Eleven species; 6, 1, L.

Uvularia perfoliata. Bellwort. The roots, when fresh, yield a fine mucilage. It is used, like the cypripedium, as a nervine. It is said to cure sore throat, by chewing it and swallowing the saliva. It is said, also, to cure the bite of the rattlesnake, like the hieraceum. It is used in cases of wounds, sores, &c. The young shoots are edible like asparagus; and the dried roots, when cooked, are also edible.

N. O.—Acera.

254. *Acer montanum.* Rock, or sugar-maple. Twenty-two species of acer; 8, 1, L. This species is most valuable on account of the sugar which it yields, which has become almost one of the staple commodities of the United States.

255. *Acer rubrum.* Soft maple; red maple; meadow maple. This species is also used in making sugar, but its sap is more aqueous, and yields less sugar. A good ink is made by boiling it with cop-

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peras (sulphate of iron). A wash for sore eyes is made by the Cherokee Indians, by boiling the inner bark with water. I have seen it used successfully.

256. *Acer striatum.* Striped maple bush; cancer bush, &c. This is a handsome tree, which seldom grows larger than a shrub. The bark is handsomely striated with green and brown. The bark of this tree has obtained some reputation as a remedy in cancerous and other eruptions, by drinking and washing with a decoction of it. But little dependence can, however, be placed upon it. The leaves have been used as a local application to the inflamed breast.

N. O.—THYMELACEÆ.

257. *Dirca.* 8, 1, L.

Dirca palustris. Leather-wood; moose-wood. Sec. The berries of this plant are thought to be poisonous. The bark is tough as leather, and it is used by the Indians instead of ropes; it is emetic, cathartic, rubefacient, and epispastic; the bark and roots are the parts employed; its properties are similar to mezereon and seneka, but it is more powerful than the latter.

N. O.—ERICEÆ.

258. *Arbutus.* Two species; 10, 1, L.

Arbutus uva ursi. Bearberry; mountain box. Off. Diuretic, and slightly astringent and tonic. It is used in nephritis, gravel, catarrhs, strangury, leucorrhœa, &c. It has been employed somewhat extensively in consumption, checking hectic fever.

259. *Gaultheria.* Six species; 10, 1, L.

Gaultheria procumbens. Off. Partridge berry; chequer berry; mountain tea; grouse berry; dewberry; spice berry; teaberry; red berry; winter green; red berry tea; ground berry; ivy; ground holly; hill berry; box berry. No less than fifteen common names for one plant. This shows how extremely arbitrary are our common English or vulgar names for plants. This is a warm, stimulating aromatic, the properties of which are well known.

260. *Kalmia.* Five species; 10, 1, L.

Kalmia latifolia. Broad-leaved laurel. Sec. The leaves are poisonous, and narcotic in their operation. They are extensively used in medical practice. An account of the uses of the plant may

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be found in our Materia Medicas, and a beautiful plate and description in Bigelow's Medical Botany.

261. *Kalmia angustifolia.* Narrow-leaved laurel; low laurel. The honey extracted from this, and the other species of laurel, by bees, is poisonous. The medical properties of this species are somewhat similar to the above. When the tribe of Indians from Canada were here in 1837, Louis Watso, their doctor, gave me an account of the principal medical plants which they used in their practice. He said that a plaster made by boiling this plant to a salve, applied to the affected part, would cure the rheumatism. See my manuscript, Medical Botany, page 71.

262. *Ledum.* Three species; 10, 1, L.

Ledum latifolium. Labrador tea; marsh tea. Sec. This plant has been used as a substitute for China tea, but it is a good deal stronger. The leaves are bitter, cephalic, pectoral, and exanthematic. Good in cutaneous eruptions, leprosy, &c., in strong decoction. It is said to kill lice, insects, &c.

263. *Rhododendron maximus.* Rosebay; mountain laurel. This beautiful plant is very scarce in Massachusetts. It is found at Plainfield, Hampshire county. It is beautifully figured and described by Bigelow. The bark and leaves are astringent. The bark is stimulant; used in rheumatism and gout. The leaves are poisonous to cattle.

N. O.—Fabaceæ.

264. *Podalyria.* Synonym, *Baptisia sophora.* 17 species; 10, 1, L.

Podalyria tinctoria. Indigo weed. Sec. This plant is emetic and cathartic. When formed into an ointment, it cleanses foul ulcers, and is of service in inflammatory tumours, and irritable ulcers. The plant placed in the harness keeps flies from horses.

265. *Vaccinium.* Forty-three species; 10, 1, L. Whortleberries; huckleberries. These are pleasant fruits, blue, or black, slightly astringent, cooling, and diuretic. They are used extensively, either raw or cooked, as articles of food. They are employed in diarrhœa, bilious fevers, dropsy, and scorbutic affections. The

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leaves are astringent, and tan leather. A tea is made of them for sore mouth.

N. O.—Portulaceæ.

266. *Portulaca.* Eight species; 11, 1, L.

Portulaca oleracea. Common purslane. Sec. This plant grows in our gardens, and is a valuable esculent. It has been considered diuretic and vermifuge. It is refrigerant and corroborant, but mild. Used in urinary complaints, and for ulcers in the mouth. A cooling ointment is made from it for sore lips and nipples.

N. O.—Cistaceæ.

267. *Cistus Canadensis.* Rock rose; 13, 1, L. It has been useful in the treatment of scrofula, in decoction, and in cataplasm.

N. O.—Scrophulareæ.

268. *Antirhinum.* Eighty-two species; 14, 2, L.

Antirhinum linaria. Toad flax. This plant was formerly in great repute as a purgative and diuretic, but it is less used than formerly. In the form of ointment prepared from the leaves, there can be no doubt that it is highly efficacious for the cure of piles. It relieves the pain and irritation of the hemorrhoidal tumours, when rubbed upon them. The ointment is also useful in diseases of the skin. The leaves have been recommended in dropsies, on account of their diuretic qualities. The expressed juice mixed in milk is a poison to flies, and the smell of the flower also kills them. One species, the *A. cymbellaria*, by mixing the dry plant with sugar, cured diabetes in Hindostan.

N. O.—Amaranthaceæ.

269. *Amaranthus melancholicus.* Thirty-seven species. Prince's feather; 20, 5, L. This plant is used for emollient poultices in England (Lindley). In strong decoction, it has proved efficacious in arresting uterine hemorrhage, when other powerful styptics have failed. Many species of amaranth have been cultivated in our gardens for the beauty of their flowers. They are boiled and eaten like pot herbs.

N. O.—Amentaceæ.

270. *Betula.* Seventeen species; 20, 13, L.

Betula lenta. Sweet birch; cherry birch; black birch; mount-

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ain mahogany. The wood is much used by cabinet-makers; and it admits of a very high polish. The bark affords a pleasant, aromatic spice, like the chequer berry. It is pectoral, diuretic, and stimulant. It is good for colds, coughs, and affections of the breast. Used by empirics in the form of tea, from the twigs, for obstruction of perspirations, and other kinds of obstructions; and for disorders of the bowels. A good sugar is made from the sap.

271. *Betula populifolia.* White birch. The inner bark is astringent, and has been employed in intermittent fever. From the bark a peculiar substance is formed, with which the Russians tan leather. The leaves, in infusion, have been used in rheumatism, gout, and cutaneous diseases. Dropsies have been relieved by enveloping the body in the fresh leaves of the birch, exciting perspiration. The sap is useful in complaints of the kidneys and bladder. The bark is used by the Indians for making canoes. The layers of the bark may be placed in the inside of boots and shoes to prevent the feet becoming wet. The white, smooth bark can be written on like paper.

272. *Betula rubra.* Red birch. Possesses similar properties.

273. *Castanea.* Two species; 20, 13, L.

Castanea Americana. Chestnut. The fruit of this valuable tree is well known. Chestnuts are too flatulent to be very healthy. The wood is valuable and durable for fences. The bark is a powerful astringent, and is used as such in tanning, and in medicine. The inner bark, boiled in milk and water, has been used successfully as an astringent in dysentery and diarrhœas, which require to be restrained after the use of physic.

274. *Comptonia.* 20, 13, L.

Comptonia asplenifolia. Sweet fern. Sec. The whole plant has a sweet, sickish, spicy odour, which manifests itself by rubbing. It is astringent and tonic, and is used in common practice in diarrhœa, and similar affections. It contains benzoic acid and resin. According to Schœpf, chewing the roots stops bleeding at the lungs. It may be used as a substitute for the more expensive balsams, in asthma, bronchitis, &c. A decoction of the plant is used here as an internal remedy, and as a wash in cases of poisoning with sumach and other external irritants.

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275. *Corylus.* Five species; 20, 13, L.

Corylus Americana. Common hazel. The fruit is said to be good in inflammation of the kidneys. The oil is supposed to be anodyne, and good for the toothache.

276. *Fagus.* Three species; 20, 13, L.

Fagus ferruginia. Beech. This is a most valuable wood, and is much used in the arts. A decoction of the leaves is useful in burns and scalds, and for frost-bitten limbs. The bark, simmered with oil or butter, is useful for the same purposes. The nuts yield a good deal of bland oil, and they are pleasant to eat. Western Massachusetts abounds in beech.

277. *Quercus.* Eighty-four species; 20, 13, L.

Quercus alba. White oak. Off.

278. *Quercus prinos discolor.* Swamp white oak.

279. *Quercus tinctoria.* Black oak. Off.

280. *Quercus prinos acuminata.* Yellow oak, and other species. All the oaks are valuable timber trees, and the bark from them is extensively used as an astringent and corroborant.

281. *Salix.* One hundred and fifteen species; 20, 2, L.

Salix ligustrina. Champlain willow. Off.

282. *Salix vitellina.* Yellow willow.

283. *Salix Viminalis.* Osier; basket willow, and other species. The bark of the willow has been employed as a substitute for Peruvian bark in intermittent fevers. The bark yields salicin, a substance similar to quinine, and employed in the same manner, and for the same purposes. The dose of the salicin is from two to eight grains. The decoction of the willow has been employed in foul and indolent ulcers.

284. *Populus.* Eight species; 21, L.

Populus tremuloides. Poplar; American poplar. Sec. This is the celebrated tonic bitter of the Thompsonians, or steamers. The bark is somewhat astringent, and has been used in tanning. The

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buds are balsamic, sudorific, stimulant, and tonic. They form a good ointment for the cure of gout, rheumatism, burns, and diseases of the skin. Internally, they are diuretic, and are used in asthma. The bark yields populine.

285. *Populus balsamifera.* Balsam poplar. This plant is similar in its properties to the balsam of copaiba, but, perhaps, more stimulating. Its properties reside in the buds of the leaves, which contain a great deal of balsam, which yields best to spirit. This spirituous balsam is a valuable vulnerary, and is a useful stimulant pectoral.

N. O.—TEREBINTHINEÆ.

286. *Juglans.* Eleven species; 20, 13, L.

Juglans cathartica. Butternut. Off. The cathartic properties of this useful tree are too well known to need description here. The fruit is the pleasantest of any of the nuts.

287. *Juglans squamosa.* Shellbark hickory, and the

288. *Juglans porcina*, pignut hickory, possess somewhat similar properties, though in less degree. An infusion of the leaves in water, and washing a horse with them in fly-time, prevents the annoyance of those insects.

N. O.—CONIFERÆ. 20, 16, L.

289. *Larix Americana.* Larch; hackmatack; tamarick. This is a beautiful tree, resembling the pines; but the leaves are deciduous in the fall. Its properties are a fine balsam, similar to turpentine; and it is good for wounds, bruises, &c.

290. *Abies.* Synonym, *Pinus.*

Abies Canadensis. Hemlock spruce. Off. The bark is astringent, and it is used in tanning. A very fine powder of it, sprinkled over excoriated nipples, and other excoriations, is very soothing, and often heals them when other applications fail. The balsam of the hemlock is used in medicine, but it is not collected in great quantities. The essential oil is stimulating, and is much used by the common people in cases of rheumatism, sprains, &c. Fomentations with the leaves and branches relieve local pains and bruises.

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291. *Abies balsamifera.* Balsam of fir; silver fir. Off. This balsam exudes from the bark of the tree, and it is sometimes obtained by boiling, but it is not of so good a quality. It is rather thicker than molasses, and of a light straw colour. It becomes thicker by standing. By distillation, it affords an essential oil. The balsam is soluble in alcohol. It is diuretic, and is used for the same purposes as the balsam copaiba, and is a very good substitute for it. The dose is from thirty to sixty drops on sugar.

292. *Abies alba.* Single spruce.

293. *Abies nigra.* Black, or double spruce. From the essence of spruce procured from these trees, and from the leaves of them are made spruce beer, so universally admired. The bark is astringent and sudorific. The resin procured from these trees nearly resembles frankincense. Josselyn, according to Rafinesque, says it is good in powder to reproduce flesh. It is used by quacks in powder, and in infusion, for complaints of the stomach and bowels, gravel, and rheumatism.

294. *Pinus*, including abies. Thirty-seven species.
Pinus mitæ. Yellow pine. Off.

295. *Pinus rigida.* Pitch pine. Off.

296. *Pinus strobus.* White pine. All the pines produce the turpentine of commerce, the properties of which are well known. The bark of the Pinus strobus is used by the Indians in poultice for the piles, and for ulcerations. They make a drawing plaster by boiling the roots. They use the decoction of the buds as a purgative, and the cones or strobiles in rheumatism. They use the tar of it dissolved in spirit as a wash in burns, tetter, and the itch. Raf. The bark is used with spikenard formed into syrup in coughs, and in resin for fresh wounds.

N. O.—Naides.

297. *Lemna.* Six species; 20, 2, L.
Lemna minor. Duck's meat. This singular plant, which floats on the top of stagnant water, is called duck's meat, because ducks are peculiarly fond of it. Ray considered an infusion of it a secret against the jaundice, when six ounces of it are taken in white wine

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for nine mornings in succession, fasting. A cataplasm of it has been used against the gout, and to alleviate the pain of the piles.

N. O.—URTICEÆ.

298. *Morus.* Ten species; 20, 4, L.

Morus rubra. Red mulberry. The fruit is refrigerant. It is used in the form of syrup, and in its raw state, and in confection; good in sore throat, angina, nervous fever, &c. The bark is said to expel the tapeworm. The fruit contains the tartaric acid.

N. O.—JUNCI.

299. *Sagittaria.* Ten species; 20, 13, L.

Sagittaria sagittifolia. Arrow-head. This, made into bread and soups, is esculent in China. It is slightly astringent; it is discutient, and checks the flow of milk when applied to the breasts of nursing women. It is of use when applied to œdematous limbs.

N. O.—CONIFERÆ.

300. *Thuja.* Six species; 20, 16, L.

Thuja occidentalis. Arbor vitæ; white cedar. Sec. This beautiful tree is indigenous in Massachusetts, as well as cultivated. The leaves are used in medicine, and from them an essential oil is distilled, which is highly stimulant and aromatic, and has been employed in chronic rheumatism; when used with care, it is vermifuge and diuretic.

N. O.—JASMINEÆ.

301. *Fraxinus.* Sixteen species; 21, 2, L.

Fraxinus acuminata. White ash. Ash trees are very valuable for timber; such as

302. *Fraxinus tomentosa.* Red ash.

303. *Fraxinus sambucifolia.* Black ash. The bark of these is bitter and astringent, and is useful for hemorrhages. The leaves, infused in a poultice, are considered useful in the bites of snakes. It is said the leaves are very poisonous to the rattlesnake, and that these reptiles will sooner run through a fire than over these leaves. The seeds are aromatic, and diuretic.

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N. O.—CONIFERÆ.

304. *Juniperus.* Fourteen species; 21, 16, L.
Juniperus Virginianum. Red cedar. Off.

305. *Juniperus sabina.* Savine. Off. This and the above are similar in their properties; they are stimulant, emmenagogue, and diaphoretic. The leaves are often resorted to by dissolute females for the purpose of procuring abortion; but they are feeble agents, and are sometimes attended with danger. The principal uses to which they are now applied are the formation of the savine cerate, which is used for keeping up discharges from blistered surfaces. The oil of cedar is considerably used in rheumatic affections; the timber is the most durable in the world, and admits of a high polish.

306. *Juniperus communis.* Juniper. Off. The berries of this species are one of the most useful diuretics.

307. *Taxus.* Ten species; 21, 16, L.
Taxus Canadensis. Yew tree; China wood. The leaves of this shrub are said to be poisonous to cattle and sheep. The berries contain sugar, a red fat, malic acid, gum, &c., and an oil which is used in China for lamps.

308. *Gerardia quercifolia.* N. O. Oak-leaved gerardia. Rafinesque says this is the specific of the Sioux Indians for the bite of the rattlesnake; and, likewise, for the toothache.

CRYPTOGAMIA.

309. *Adiantum pedatum.* Maiden hair; rock fern. The plant is slightly aromatic and astringent. Its active properties reside in a mucilage with this astringent. Its principal use is as a pectoral and expectorant. In the form of syrup, I have often used it with success in chronic coughs.

310. *Aspidium.* Twenty-five species in America.
Aspidium filix mas. Male fern. Sec. This is the celebrated vermifuge, destroying tapeworms, of Madam Nœuffer, for which she was liberally rewarded by her native government of Switzerland. It does not answer the high encomiums bestowed upon it. The plant has been used for rickets.

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311. *Asplenium.* Many species.

Asplenium ruta mararia. Spleenwort. It grows in low woods near moist meadows, and among rocks. The decoction of the leaves is pectoral, diuretic, and mildly astringent. They open obstructions of the viscera, and promote expectoration, allay pain in the urinary organs, by gently carrying off the sand and gravel, and they have been said to have cured the venereal disease used in decoction.

312. *Equisetum arvensi.* Cat-tail; horse-tail. This is a most troublesome weed in our meadows and pastures. Cattle will not touch it unless severely pressed with hunger, in which case it brings on a severe relax and dysentery. Horses eat it with impunity; but it is noxious to sheep. It is astringent and diuretic. It is sometimes used in bleeding at the stomach, in gonorrhœa, and in phthisis. This, and several other species are in considerable use in tanning and dressing leather.

313. *Equisetum hymale.* Scouring rush. This plant is much used in scouring wood, metals, &c.; said to be good for cattle in winter. It is used, in Italy, for cattle as a diuretic, and is good for cattle discharging blood. I have often given an infusion of it in cases of strangury.

314. *Fungi.* Mushrooms. One hundred and fifty species; most of them found here. Two species are tonic and bitter, the *helvella amara* and *boletus laricis.* All those which afford milk, and are deliquescent, and of a fetid odour, are poisonous, being narcotic and acrid in their properties. The remedies for eating these species are a speedy emetic, purgatives, emollient and acid drinks.

315. *Lycopodium complanatum.* Sec. Ground pine; dead man's hand. This is used by Stewart for the cure of colic. It is diuretic, emetic, emmenagogue, nervine, &c. It is employed in diarrhœa, dropsy, gout, and scurvy. Externally, it is used for the cure of ulcers, tinea capitis, and hepatic eruptions. The decoction kills lice, and is used to improve bad wine. The pollen is used in fireworks.

316. *Polypodium vulgare.* Polypod. The root, which is the part used, is sweet and mucilaginous to the taste. It is vermifuge and demulcent, cathartic, and pectoral. The syrup is used in coughs, and in the rickets and lumbago. In strong decoction, it is thought

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to be cathartic and vermifuge. The ancients employed it in bilious affections, in coughs and catarrhs, and in maniacal and melancholic cases.

317. *Osmunda regalis.* Royal osmund; buckthorn brake. Lindley says the rhizoma is tonic and styptic, and said to be serviceable in cases of rachitis. The centre bulb, or nucleus, just above the roots, is highly mucilaginous and corroborant. Infused in spirit, until it becomes ropy, it is much in vogue for the cure of rheumatism, weakness of the back, swellings, and indolent tumours, by bathing the parts affected with it. It is also much in use in female weaknesses, and in all cases of general debility.

N. O.—MYRICACEÆ.

318. *Myrica cerifera.* Bayberry. Off. The wax made from the berries of this plant has been successfully used by Fahnestock, of Lancaster, Pa., in cases of dysentery. I have not been successful in the use of it in this affection. The root is stimulant and acrid, antispasmodic and astringent. Dr. Bigelow says the bark of the root is acrid and astringent; in large doses, producing vomiting accompanied by a burning sensation; constipation usually follows. The powder is very stimulating and acrid. The fruit is enveloped with an aromatic waxy secretion, which may be collected and purified, and used like beeswax and tallow. This is called bay-wax, and bayberry tallow. It is used in pharmacy for ointments for various purposes, and it is mild or stimulant as it is more or less pure. Next to the divine lobelia, the steamers make use of the bark of the root in cases of debility.

319. JESTIS-WEED. I cannot close this notice of our medicinal plants, without inviting the attention of my professional brethren throughout the Union towards this plant, which is said to be so sovereign in the cure of the bite of the deadly rattlesnake. I have in vain endeavoured to ascertain the botanical name of the plant, by inquiry of my classes, in the various medical colleges in which I have lectured, who have resided in different sections of the United States, and have instituted inquiries in our medical journals in relation to its scientific name and history; I have not succeeded in finding it. This shows how arbitrary are our English or common names for plants. I hope, through the medium of this communication, some one of our brethren may be able to inform the public what it is.

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The late horrible death of one of our professional brethren in the city of New York, from the bite of a rattlesnake, should excite a diligent inquiry into a remedy for this fatal poison. The late Dr. B. S. Barton, of Philadelphia, in his Med. and Phys. Journal for 1808, gives a long paper upon the successful use of this plant in the cure of the bite of the rattlesnake, in nine cases, by a Mr. Haynesworth, probably of one of the southern or south-western States. Where he is from, and what is the botanical name of the plant, I cannot learn. I hope some of my readers will be more successful, and communicate the result of their inquiries.

Officinal plants in this enumeration	68
Secondary in the Dispensatories	56
Neither officinal nor secondary	195
	319

The following is the number of plants in the orders enumerated:—

Araliaceæ	4	Urticaceæ	4
Umbelliferæ	13	Euphorbiaceæ	2
Ranunculaceæ	14	Geraniaceæ	4
Papaveraceæ	2	Balsamineæ	1
Nymphiaceæ	2	Polygalaceæ	1
Podophylleæ	1	Violaceæ	6
Cruciferæ	10	Droseraceæ	1
Fumariaceæ	1	Caryophyllaceæ	4
Capparideæ	1	Crassulaceæ	1
Berberideæ	2	Chenopodiaceæ	2
Magnoliaceæ	2	Phytolacaceæ	1
Laurineæ	2	Polygonaceæ	3
Malvaceæ	6	Pyrolaceæ	3
Tiliaceæ	1	Lobeliaceæ	2
Hypericeaneæ	2	Plantageneæ	2
Saxifrageæ	3	Compositæ	30
Hamameliaceæ	1	Stellatæ	5
Circoraceæ	1	Apocynaceæ	2
Salicariæ	1	Gentianaceæ	3
Aristolochiæ	1	Convolvulaceæ	2
Rosaceæ	17	Orobancheæ	6
Leguminosæ	6	Solanaceæ	25

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Verbenaceæ	20	Amentaceæ	17
Boraginaceæ	2	Ulmaceæ	1
Alismaceæ	1	Narcissus	1
Iridaceæ	1	Acera	2
Orchideæ	5	Thymelaceæ	1
Melanthaceæ	3	Ericaceæ	7
Smilaceæ	6	Fabaceæ	2
Liliaceæ	2	Portulaceæ	1
Typhiaceæ	1	Cistaceæ	1
Aroideæ	5	Scrophulariaceæ	1
Cinchonaceæ	6	Amaranthaceæ	1
Caprifoliaceæ	3	Terebinthineæ	3
Anacardiaceæ	4	Coniferæ	12
Xanthoxylaceæ	1	Naides	1
Celastraceæ	1	Cryptogamia	7
Rhamnaceæ	6		

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CATALOGUE OF THE OFFICERS AND PERMANENT MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION.

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Bartlett, Ezra	*South Berwick.*
Lincoln, Isaac	*Brunswick.*
McRuer, D.	*Bangor.*

NEW HAMPSHIRE.

Abbott, James B.	*Sandbornton.*
Bartlett, Josiah	*Stratham.*
Batchelder, Daniel H.	*Londonderry.*
Batcheller, James	*Marlborough.*
Brown, Thomas	*Manchester.*
Buck, W. D.	*do.*

* By a Resolution of the Association, adopted at the annual meeting in Baltimore, the Committee on Publication are "desired to append to the Proceedings of the Association each year a catalogue of its officers and permanent members."

In preparing the catalogue, in accordance with the above resolution, the committee have been guided,

1st. By the article of the Constitution, which declares that "The permanent members shall consist of all those *who have served in the capacity of delegates*, and of such other members as may receive the appointment by unanimous vote." Further, "Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name and address in full, specifying in what capacity he attends, and, if a delegate, the title of the institution from which he has received his appointment."

2d. By the Resolution adopted by the Association, at its meeting in Boston, "That any delegate, who is in arrears for an annual assessment, shall not be considered as a permanent member."

To have served as a delegate, signed the constitution, and paid the annual assessment, are thus essential to permanent membership. The neglect of some of the delegates to comply with *all* these conditions will explain the omission of their names from the catalogue. The difficulty of deciphering the signatures of the members, in many instances, must plead in extenuation of such errors of orthography as may be detected.

The names, and also the addresses, with a few exceptions, are given exactly as registered, the committee not having the means of designating all the changes of residence, or of indicating all those whom the Association has lost by death. The latter, so far as known, are marked thus †. For the correction of future catalogues, it is requested that the secretaries may be informed of all errors and omissions in the present one.

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Carr, Alonzo F.	*Goffstown.*
Carr, John	*Sandbornton.*
Carter, Ezra	*Concord.*
Crosby, Dixi	*Hanover.*
Crosby, Josiah	*Manchester.*
Crosby, T. R.	*do.*
Cummings, Silas	*Fitzwilliam.*
Danforth, James	*New Boston.*
Dickey, Abraham O.	*Lyme.*
Eaton, Harrison	*Merrimack.*
Fernald, John S.	*Barrington.*
Fitch, Francis P.	*Amherst.*
Gage, Charles P.	*Concord.*
Graves, Josiah G.	*Nashville.*
Hamilton, Cyrus B.	*Lyme.*
Haynes, Timothy	*Concord.*
Hill, Levi G.	*Dover.*
Hoyt, Enos	*Framingham.*
Kelley, S. B.	*Franklin.*
Marshall, Thomas H.	*Mason Village.*
Martin, Noah	*Dover.*
Peaslee, Edmund R.	*Hanover.*
Prescott, William	*Concord.*
Savory, Charles A.	*Hopkinton.*
Smalley, Adoniram	*Lyons.*
Smith, Albert	*Peterborough.*
Smith, Joseph H.	*Dover.*
Spaulding, Edward	*Nashua.*
Twitchell, Amos	*Keene.*
Twitchell, George B.	*do.*
Webster, E. K.	*Boscawen.*
Woodbury, Peter P.	*Bedford.*

VERMONT.

Babcock, M. N.	*Fairfield.*
Bancroft, J. P.	*St. Johnsburg.*
Bass, Zacheus	*Middleburg.*
Burnham, Z. P.	*Montpelier.*
Carpenter, W.	*East Randolph.*
Carr, E. S.	*Castleton.*
Chandler, Charles B.	*Tunbridge.*

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Drew, O. W.	*Waterbury.*
†Hall, Charles	*Burlington.*
Hatch, Horace	*do.*
Higginson, Francis J.	*Brattleboro'.*
Jewett, Calvin	*St. Johnsburg.*
Morse, James R.	*Chelsea.*
Newell, Selim	*Lyndon.*
Niles, H. H.	*Thetford.*
Perkins, Joseph	*Castleton.*
Phelps, Edward E.	*Windsor.*
Pitkin, A. S.	*Burlington.*
Ranney, W. R.	*Townshend.*
Rockwell, W. H.	*Brattleboro'.*
Smith, Orrin	*Berlin.*
Spalding, James	*Montpelier.*
Stiles, J. N.	*Strafford.*
Story, Dyer	*West Windsor.*
Washburn, Cyrus	*Vernon.*
Woodward, Ashbel	*Franklin.*
Worcester, E. C.	*Thetford.*

MASSACHUSETTS.

Abbott, Samuel L.	*Boston.*
Adams, Z. Boylston	*do.*
Adams, Horatio	*Waltham.*
Agassiz, Louis	*Cambridge.*
Ainsworth, F. S.	*Boston.*
Alden, Ebenezer	*Randolph.*
Allen, Nathan	*Lowell.*
Bacon, jr., John	*Boston.*
Bancroft, Amos B.	*Groton.*
Bartlett, George	*Boston.*
Bartlett, Lyman	*New Bedford.*
†Batcheller, Stephen	*Royalton.*
Bell, Luther V.	*Somerville.*
Bemis, David	*Chicopee.*
Bemis, Jonathan W.	*Charlestown.*
Bethune, George A.	*Boston.*
Bigelow, Henry J.	*do.*

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Bigelow, Jacob	*Boston.*
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Bowditch, Henry I.	*do.*
Bridgman, William	*Springfield.*
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Brown, Jonathan	*Tewkesbury.*
Buck, Ephraim	*Boston.*
Buckingham, Charles E.	*do.*
Cabot, jr., Samuel	*do.*
Channing, Walter	*do.*
Chase, Charles	*Chelsea.*
Childs, H. H.	*Pittsfield.*
Clarke, Edward H.	*Boston.*
Clark, Henry G.	*do.*
Coale, William E.	*do.*
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Comstock, W. W.	*Wrentham.*
Cornish, Aaron	*Falmouth.*
Crane, Phineas M.	*East Boston.*
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Cutter, Benjamin	*Woburn.*
Cutter, Nehemiah	*Pepperell.*
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Dalton, John C.	*Lowell.*
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Dix, John H.	*Boston.*
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Flint, John	*Boston.*
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Gordon, Charles	*Boston.*
Gordon, Timothy	*Plymouth.*
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Guiteau, Coridon	*Lee.*
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Hooper, R. W.	*Boston.*
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Inches, H. B.	*Boston.*
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Jackson, J. B. S.	*do.*
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Leonard, Jonathan	*Sandwich.*
Lyman, George H.	*Boston.*
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Mackie, Andrew	*New Bedford.*
Metcalf, John George	*Mendon.*
Morland, William W.	*Boston.*
Morrill, Samuel	*do.*
Mowe, Daniel	*Lowell.*
Odin, jr., John	*Boston.*
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Parkman, Samuel	*do.*
Parks, jr., Luther	*do.*
Peck, William D.	*Sterling.*
Peirson, A. L.	*Salem.*
Peirson, E. B.	*do.*
Perkins, Henry C.	*Newburyport.*
Perry, M. S.	*Boston.*
Pierce, John	*Edgartown.*
Pillsbury, John D.	*Lowell.*
Pond, Benjamin	*Westborough.*
Poole, Alexander	*Dennis.*
Reynolds, Edward	*Boston.*
Reynolds, Joseph	*Gloucester.*
Robbins, James W.	*Uxbridge.*

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Russell, Le Baron	*Boston.*
Shattuck, jr., George C.	*do.*
Shurtleff, Nathaniel B.	*do.*
Smith, J. V. C.	*do.*
Snow, A. B.	*do.*
Spaulding, Miles	*Dunstable.*
Spooner, John P.	*Dorchester.*
Spooner, Paul	*New Bedford.*
Stedman, Charles H.	*Boston.*
Stevens, William F.	*Stancham.*
Stone, Joseph	*Hardwick.*
Storer, D. Humphreys	*Boston.*
Thayer, W. Henry	*do.*
Townsend, S. D.	*Boston.*
Wales, Bradford L.	*Randolph.*
Ware, John	*Boston.*
Ware, Jonathan	*Milton.*
Warren, John C.	*Boston.*
Warren, J. Mason	*do.*
Warren, jr., J. W.	*do.*
Whitney, Simon	*Framingham.*
Williams, Stephen W.	*Deerfield.*

RHODE ISLAND.

Arnold, S. Augustus	*Smithfield.*
Ballou, A. W.	*do.*
Capron, George	*Providence.*
Clapp, Sylvanus	*Pawtucket.*
Clifford, Lewis W.	*Providence.*
Collins, George L.	*do.*
Dunn, Theophilus C.	*Newport.*
Ely, James W. C.	*Providence.*
Fowler, Ezekiel	*Smithfield.*
King, David	*Newport.*
Mauran, Joseph	*Providence.*
Miller, Lewis L.	*do.*
Parsons, Charles W.	*do.*
Parsons, Usher	*do.*

CONNECTICUT.

Barker, B. Fordyce	*Norwich.*

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Beardsley, Sheldon	*North Branford.*
Beresford, S. B.	*Hartford.*
Bishop, E. H.	*New Haven.*
Bowen, Samuel	*Thompson.*
Bradford, Milton	*Woodstock.*
Brigham, Norman	*Mansfield.*
Campbell, Harvey,	*Voluntown.*
Carrington, E. W.	*Farmington.*
Casey, W. B.	*Middletown.*
Comings, B. N.	*Rockville.*
Converse, Shubael	*Norwich.*
Downing, Eleazer B.	*Preston.*
Fowler, R. M.	*Litchfield.*
Haile, A. B.	*Norwich.*
Hall, Eli	*East Hartford.*
Hammond, J.	*Killingly.*
Hatch, Johnson C.	*Kent.*
Hooker, Worthington	*Norwich.*
Hubbard, S. G.	*New Haven.*
Ives, Eli	*do.*
Ives, Nathan B.	*do.*
Jarvis, George O.	*Portland.*
Jewett, P. A.	*New Haven.*
Knight, Jonathan	*do.*
Lyman, Norman	*Warren.*
Middlebrook, Elijah	*Trumbull.*
Peters, Manly	*Woodville.*
Pierson, William S.	*Windsor.*
Platt, Gideon L.	*Waterbury.*
Rogers, Benjamin	*Hartford.*
St. John, G. H.	*New Milford.*
Sumner, George	*Hartford.*
Taylor, Jr., Nathaniel W.	*New Haven.*
Warner, Richard	*Middletown.*
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Welch, Archibald	*Wethersfield.*
Witter, William	*Windham.*
Wright, Albert A.	*Canaan.*

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Anderson, James	*do.*
Ayres, Daniel	*Brooklyn.*
Ayres, Daniel	*Amsterdam.*
Atwater, D. F.	*Brooklyn.*
Babcock, Charles	*New Hartford, Oneida Co.*
Baker, jr., A.	*Norwich.*
Batchelder, J. P.	*New York.*
Baxter, Hiram	*Stillwater, Saratoga Co.*
Beadle, E. L.	*New York.*
Bissell, H. P.	*Utica.*
Blakeman, William N.	*New York.*
Blatchford, Thomas W.	*Troy.*
Borrowe, J. H.	*New York.*
Bradford, George W.	*Homer, Cortland Co.*
Brinsmade, Thomas C.	*Troy.*
Buck, Jr., Gurdon	*New York.*
Buel, William P.	*do.*
Bulkley, Henry D.	*do.*
Burton, C. V. W.	*Lansingburgh.*
Burwell, Bryant	*Buffalo.*
Calkins, Alonzo	*New York.*
Carr, Edson	*Canandaigua.*
Cary, Walter	*Buffalo.*
Clark, Alonzo	*New York.*
Clements, James W. G.	*do.*
Cock, Thomas	*do.*
Cock, Thomas F.	*do.*
Collins, Clarkson T.	*do.*
Cook, Simeon A.	*Ruskerk's Bridge.*
Corliss, Hiram	*Greenwich, Washington Co.*
Coventry, C. B.	*Utica.*
Dering, Nicoll H.	*Utica.*
Downs, Henry S.	*New York.*
Draper, John W.	*do.*
Dubois, Abram	*do.*
Earle, Pliny	*do.*
Flint, Austin	*Buffalo.*
Ford, Corydon L.	*do.*

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Foster, S. Conant	*do.*
Francis, John W.	*do.*
Gardner, Augustus K.	*do.*
Gilman, Chandler R.	*do.*
Goodsell, Thomas	*Utica.*
Gray, Henry G.	*North White Creek.*
Greene, Isaac	*New York.*
Green, Horace	*do.*
Griscom, John H.	*do.*
Hadley, George	*Buffalo.*
Halsted, T. M.	*New York.*
Hamilton, Frank H.	*Buffalo.*
Harvey, Charles W.	*do.*
Hard, P. H.	*Oswego.*
Hart, John	*New York.*
Hart, Samuel	*Oswego.*
Hawley, Joel E.	*Ithaca.*
Hubbard, Samuel T.	*New York.*
Hyde, Frederick	*Cortlandville.*
Hyde, Lucius	*Brooklyn.*
Jerome, James H.	*Trumansburg.*
Jewett, Harvey	*Allen's Hill, Ontario Co.*
Kissam, R. S.	*New York.*
Lee, Charles A.	*do.*
Linsly, Jared	*do.*
Mac Farlan, Ebenezer	*do.*
Manley, James R.	*do.*
March, Alden	*Albany.*
Markoe, T. M.	*New York.*
McCall, John	*Utica.*
McNaughton, James	*Albany.*
Mitchell, Henry	*Norwich.*
Metcalfe, John T.	*New York.*
Morris, R. L.	*do.*
Moses, Israel (U. S. A.)	*do.*
Mott, Valentine	*do.*
Ogden, Benjamin	*do.*
Parker, Willard	*do.*
Parmly, Eleazer	*do.*
Pattison, Granville S.	*do.*

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Phelps, James L.	*New York.*
Phillips, S. B.	*do.*
Pond, James O.	*do.*
Post, Alfred C.	*do.*
Punnett, John	*do.*
Reese, D. Meredith	*do.*
Reynolds, Tabor B.	*Wilton, Saratoga co.*
Rodgers, J. Kearny	*New York.*
Russ, J. D.	*do.*
Sayre, Lewis A.	*do.*
Shipman, Azariah B.	*Syracuse.*
Skilton, Avery J.	*Troy.*
Smith, Albert	*New York.*
Smith, Charles D.	*do.*
Smith, Joseph M.	*do.*
Snow, Simeon	*Root.*
Snyder, Morgan	*Fort Plain.*
Sprague, Jenks S.	*Exeter, Otsego Co.*
†Stearns, John	*New York.*
Stevens, Alexander H.	*do.*
Stewart, F. Campbell	*do.*
Stout, Arthur B.	*do.*
Swett, John A.	*do.*
Taft, Marcus L.	*do.*
Tefft, Lake J.	*Onondaga.*
Thompson, Jr., A. G.	*New York.*
Van Kleek, John R.	*do.*
Van Buren, W. H.	*do.*
Van Rensselaer, Alexander	*do.*
Warren, James	*do.*
Watson, John	*do.*
Watts, Jr., Robert	*New York.*
Weeks, Cyrus	*do.*
White, Devillo	*Sherburne, Chenango Co.*
White, James P.	*Buffalo.*
Willard, Augustus	*Greene.*
Wing, Joel A.	*Albany.*
Wood, Isaac	*New York.*
Wood, James R.	*do.*

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Wotkyns, Alfred	*Troy.*

NEW JERSEY.

Canfield, J. W.	*Morristown.*
†Cole, N. W.	*Burlington.*
Cooper, Richard M.	*Camden.*
Fithian, Enoch	*Greenwich.*
Fithian, Joseph	*Woodbury.*
Garrison, Charles	*Swedesboro'.*
Garrison, J. F.	*do.*
Gibbon, Quinton	*Salem.*
Haines, Job	*Burlington.*
Hendry, Charles D.	*Camden Co.*
Hunt, T. Edgar	*Clarksville.*
Marsh, Elias J.	*Paterson.*
Munn, J. B.	*Chatham, Morris Co.*
Nichols, Whitfield	*Newark.*
Parrish, Joseph	*Burlington.*
Rogers, Alexander W.	*Paterson.*
Pennington, Samuel H.	*Newark.*
Pierson, W.	*Orange.*
Read, Zachariah	*Mount Holly.*
Saunders, Thomas J.	*Woodbury.*
Schenck, F. S.	*Camden.*
Smith, Lyndon A.	*Newark.*
Taylor, Othniel H.	*Camden.*

PENNSYLVANIA.

Andrews, James P.	*Lancaster.*
Ashmead, William	*Philadelphia.*
Atlee, Washington L.	*do.*
Atlee, John L.	*Lancaster.*
Bache, Franklin	*Philadelphia.*
Baker, Charles L.	*Lancaster.*
Bell, John	*Philadelphia.*
Betton, Thomas F.	*Germantown.*
Biddle, John B.	*Philadelphia.*
Bond, Henry	*do.*
Breitenbach, J.	*Myerstown.*
Bridges, Robert	*Philadelphia.*
Brown, H. J.	*do.*

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Bryan, James	*do.*
Burden, Jesse R.	*do.*
Burrowes, Francis S.	*Lancaster.*
Carpenter, Henry	*do.*
Carpenter, James S.	*Pottsville.*
Carson, Joseph	*Philadelphia.*
Chapman, Nathaniel	*do.*
Clymer, Meredith	*do.*
Coates, B. Hornor	*do.*
Condie, D. Francis	*do.*
Corson, Hiram	*Conshohocken.*
Cox, C. C.	*Philadelphia.*
Duffield, Samuel	*Lancaster.*
Ehler, J. Augustus	*do.*
Emerson, Gouverneur	*Philadelphia.*
Eshleman, J. K.	*Lancaster Co.*
Foulke, J. S.	*Gwynedd, Mont. Co.*
Fox, George	*Philadelphia.*
Fronefield, Charles	*Montgomery Co.*
Gerhard, William W.	*Philadelphia.*
Gibson, William	*do.*
Gibbons, Henry	*do.*
Grant, William R.	*do.*
Griscom, J. D.	*do.*
Haines, William S.	*do.*
Hallowell, Edward	*do.*
Handy, J. H.	*do.*
Harry, Samuel H.	*Doe Run, Chester Co.*
Hart, Alexander C.	*Philadelphia.*
Hatfield, N. L.	*do.*
Hays, Isaac	*do.*
Hodge, Hugh L.	*do.*
Horner, William E.	*do.*
Humes, Samuel	*Lancaster.*
Huston, Robert M.	*Philadelphia.*
Jackson, Samuel (Prof.)	*do.*
Jackson, Samuel	*do.*
Janney, Benjamin S.	*do.*
Jewell, Wilson	*do.*
Keith, William	*do.*

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King, Charles R.	*Philadelphia.*
Klapp, William H.	*do.*
La Roche, Réné	*do.*
Leib, Henry F.	*do.*
Matthews, Charles H.	*Doylestown.*
Mayburry, William	*Philadelphia.*
McClellan, J. H. B.	*do.*
McCoy, John M.	*Bellefonte.*
McClintock, James	*Philadelphia.*
McIlvain, William	*York.*
Meigs, Charles D.	*Philadelphia.*
Mitchell, John K.	*do.*
Mitchell, Thomas D.	*do.*
Moore, John Wilson	*do.*
Morris, Caspar	*do.*
Morton, Samuel George	*do.*
Muhlenberg, F. H.	*Lancaster.*
Muhlenberg, Henry E.	*do.*
Murphey, Andrews	*Parkesburg.*
Mütter, Thomas D.	*Philadelphia.*
Naudain, Arnold	*do.*
Neill, John	*do.*
Norris, George W.	*do.*
Page, William Byrd	*do.*
Pancoast, Joseph	*do.*
Parrish, Isaac	*do.*
Patterson, Henry S.	*do.*
Patterson, George W.	*do.*
Paul, J. Rodman	*do.*
Pepper, William	*do.*
†Randolph, Jacob	*do.*
Remington, Isaac	*do.*
Rivinus, Edward F.	*Westchester.*
Rodman, Lewis	*Philadelphia.*
Rogers, James B.	*do.*
Sargent, Jr., Winthrop	*Manayunk.*
Smith, Moses B.	*Philadelphia.*
Smith, Jr., Francis G.	*do.*
Stewart, J. D.	*do.*

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Stubbs, J. B.	*Lancaster.*
Thomas, George W.	*Norristown.*
Thomas, Isaac	*Westchester.*
Thompson, William S.	*Lancaster.*
Townsend, R. H.	*Philadelphia.*
Uhler, John	*do.*
Walker, Isaac R.	*Spread Eagle, Chester Co.*
West, Francis	*Philadelphia.*
Wilson, William J.	*Potter's Mills, Centre Co.*
Wiltbank, John	*Philadelphia.*
Wood, George B.	*do.*
Wood, Thomas	*Muncy, Lycoming Co.*
Worthington, Wilmer	*Westchester.*
Yardley, Thomas H.	*Philadelphia.*
Zulick, S. M.	*Orwigsburg.*

DELAWARE.

Askew, Henry F.	*Wilmington.*
Baker, George W.	*do.*
Bush, Lewis P.	*do.*
Couper, James	*Newcastle.*
Cummins, William	*Smyrna.*
Grimshaw, A. H.	*Wilmington.*
Hamilton, William N.	*Cantwell's Bridge.*
Jump, Isaac	*Dover.*
Morris, William W.	*do.*
Perkins, John D.	*Smyrna.*
Porter, Robert R.	*Wilmington.*
Smith, Thomas Mackie	*Brandywine.*
Thomson, James W.	*Wilmington.*
Wilson, James F.	*do.*

MARYLAND.

Alexander, Ashton	*Baltimore.*
Armitage, James	*do.*
Atkinson, Thomas C.	*do.*
Baer, M. S.	*do.*
Baldwin, E. C.	*do.*
Baker, Alfred	*do.*
Baxley, Willis H.	*do.*

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Bond, Thomas E.	*Baltimore.*
Bordley, James	*do.*
Briscoe, John H.	*do.*
Buckler, Thomas H.	*do.*
Chew, Samuel	*do.*
Clarke, S. R.	*do.*
Cohen, Joshua J.	*do.*
Dallam, William M.	*Harford Co.*
Davis, William H.	*Baltimore.*
Donaldson, Francis	*do.*
Dorsey, Lloyd	*Frederick.*
Dulin, Alexander F.	*Baltimore.*
Dunbar, John R. W.	*do.*
Fonerden, John	*do.*
Gibson, J. Grigg	*Fredericktown.*
Gunn, John P.	*Baltimore.*
Handy, Samuel K.	*Somerset Co.*
Harris, Chapin A.	*Baltimore.*
Hemsley, W.	*Caroline Co.*
Hintze, F. E. B.	*Baltimore.*
Hopkins, Joel	*Elkridge Landing.*
Jameson, Sr., Horatio G.	*Baltimore.*
†Jenkins, Solomon M.	*Easton.*
Joynes, Levin S.	*Baltimore.*
Kinney, Jr., William	*do.*
Leonard, William T.	*do.*
Lockwood, John A. (U. S. N.)	*Annapolis.*
Martin, Thomas W.	*Dorchester Co.*
Miltenberger, G. W.	*do.*
Monkur, John C. S.	*do.*
Pinckney, Ninian (U. S. N.)	*Easton.*
Power, William	*Baltimore.*
Roberts, George C. M.	*do.*
Robinson, Alexander C.	*do.*
Roby, Joseph	*do.*
Sappington, Thomas	*Liberty, Frederick Co.*
Smith, Nathan R.	*Baltimore.*
Smith, Samuel P.	*Cumberland.*
Steuart, R. S.	*Baltimore.*
Stokes, William H.	*do.*
Teackle, John N.	*do.*

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Thomas, Richard H.	*do.*
Tyler, Samuel	*Frederick.*
Warfield, Jesse L.	*Westminster, Carroll Co.*
Webster, John Lee	*Baltimore.*
Williams, W.	*Somerset Co.*
Wood, W. Maxwell (U. S. N.)	*Baltimore.*
Wroth, Peregrine	*Chestertown.*
Wynne, James	*Baltimore.*
Yeates, John L.	*do.*

DISTRICT OF COLUMBIA.

Boyle, Cornelius	*Washington.*
Johnston, William P.	*do.*
Lindsly, Harvey	*do.*
May, J. F.	*do.*
Miller, Thomas	*do.*
Riley, Joshua	*Georgetown.*
Thomas, John M.	*do.*
Tyler, Grafton	*do.*
Young, N.	*Washington.*

VIRGINIA.

Bates, W. J.	*Wheeling.*
Broocks, John N.	*Richmond.*
Cabell, James L.	*University of Virginia.*
Carmichael, George F.	*Fredericksburg.*
Cochran, William B.	*Loudon Co.*
Cooke, A. T. M.	*Norfolk.*
Corbin, G. Lane	*Warwick Co.*
Faunt Le Roy, John	*Clarke Co.*
Gibson, Charles Bell	*Richmond.*
Haxall, Robert W.	*do.*
Houston, M. H.	*Wheeling.*
Howard, Henry	*University of Virginia.*
Johnson, Carter P.	*Richmond.*
Magill, Henry D.	*Leesburg.*
Massie, H.	*Charlottesville.*
McGuire, Hugh H.	*Winchester.*
McElhenny, S. W.	*Wheeling.*
Peebles, J. F.	*Petersburg.*

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Randolph, Robert	*Wellwood, Clarke Co.*
Selden, William	*Norfolk.*
Silvester, R. W.	*do.*
Trigg, Daniel	*Abingdon.*
Tucker, David H.	*Richmond.*
Upshur, George L.	*Norfolk.*
Wellford, Beverley R.	*Fredericksburg.*

NORTH CAROLINA.

Pittman, Newsom J.	*Rocky Mount.*

SOUTH CAROLINA.

Barker, Sandford W.	*Charleston.*
Elfe, Edward	*do.*
Frost, Henry R.	*do.*
Gaillard, Peter C.	*do.*
Jervey, James P.	*do.*
Lebby, Robert	*do.*
Moultrie, James	*do.*
Prioleau, Thomas G.	*do.*
Wragg, William T.	*do.*

GEORGIA.

Arnold, Richard D.	*Savannah.*
Campbell, Robert	*Augusta.*
Dugas, L. A.	*do.*
Eve, Paul F.	*do.*
Eve, Joseph A.	*do.*
Ford, L. D.	*do.*
Garvin, J. P.	*do.*
Ogilby, Hugh J.	*Madison.*
Tufts, Johnston B.	*Savannah.*

ALABAMA.

Blakey, Boling A.	*Montgomery.*
Jones, Benjamin R.	*do.*

LOUISIANA.

Barton, Edward H.	*New Orleans.*
†Carpenter, William M.	*do.*
†Harrison, J.	*do.*

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Simonds, J. C.	*do.*

MISSISSIPPI.

Keirn, G.	*Lexington, Holmes Co.*

TENNESSEE.

Avent, B. W.	*Murfreesborough.*
Buchanan, A. H.	*Nashville.*
Harris, S. H.	*do.*
Lenoir, B. B.	*Roane Co.*
Litton, A.	*Nashville.*
Ramsay, Frank A.	*Knoxville.*

KENTUCKY.

Annan, Samuel	*Lexington.*
Yandell, Lewis P.	*Louisville.*

OHIO.

Awl, William M.	*Columbus.*
†Butterfield, J.	*do.*
Delamater, Jacob J.	*Cleveland.*
Fries, George	*Hanovertown.*
Gaston, Ephraim	*Morristown.*
†Harrison, John P.	*Cincinnati.*
Howard, Richard L.	*Columbus.*
Judkins, Daniel	*Cincinnati.*
Mussey, Reuben D.	*do.*
Smith, Samuel M.	*Columbus.*
White, John F.	*Cincinnati.*

INDIANA.

Latta, Milton M.	*Goshen.*

ILLINOIS.

Davis, N. S.	*Chicago.*
Edwards, Willis G.	*Alton.*
Evans, John	*Chicago.*
Frye, Joseph C.	*Peoria.*
Herrick, Josiah B.	*Vandalia.*
Rouse, Rudolphus	*Peoria.*

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Holmes, R. S.	*St. Louis.*
Johnson, John B.	*do.*
Meade, D. E.	*do.*
Reyburn, Thomas	*do.*

MICHIGAN.

Pierce, James L.	*Corunna.*

IOWA.

Malcolm, A. B.	*Dubuque.*
Sanford, John F.	*Davenport.*

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